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CallPilot

Installation and Configuration

Part 3: Switch Setup and CallPilot Server Configuration

Product release 1.07 Standard 1.0 May 2000

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Chapter 1

Switch programming and call routing overview

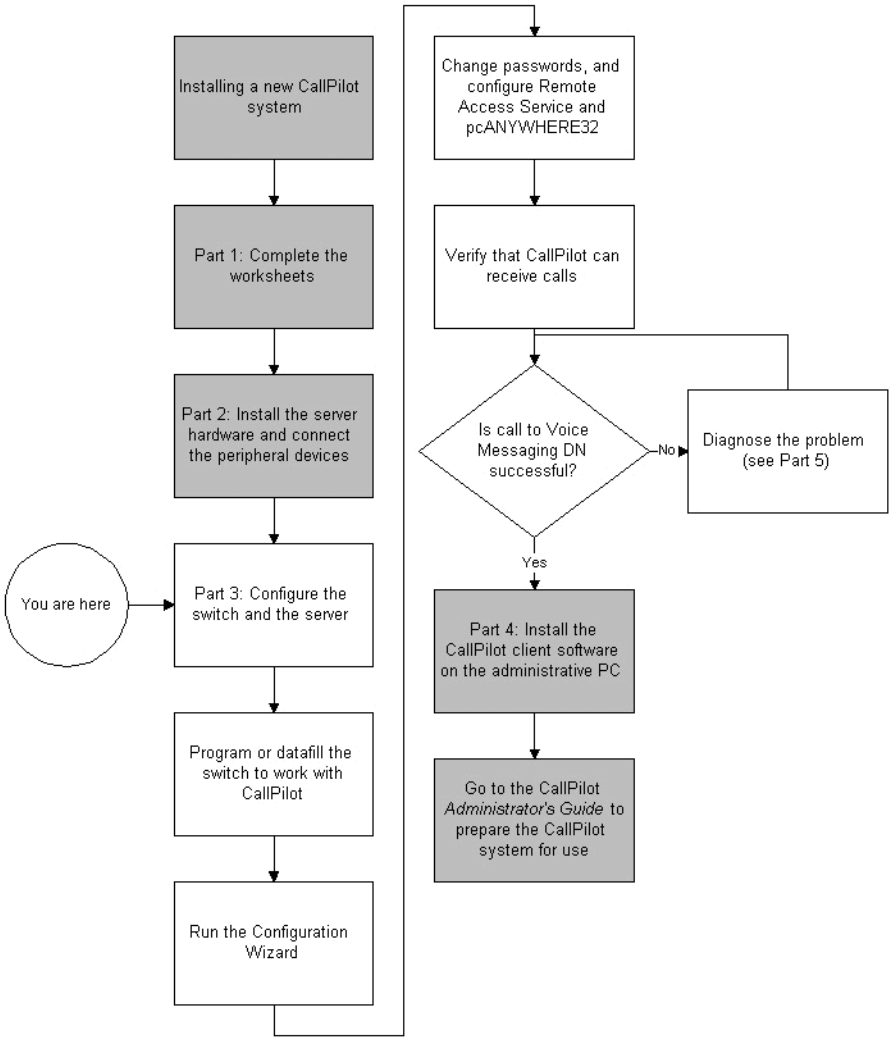
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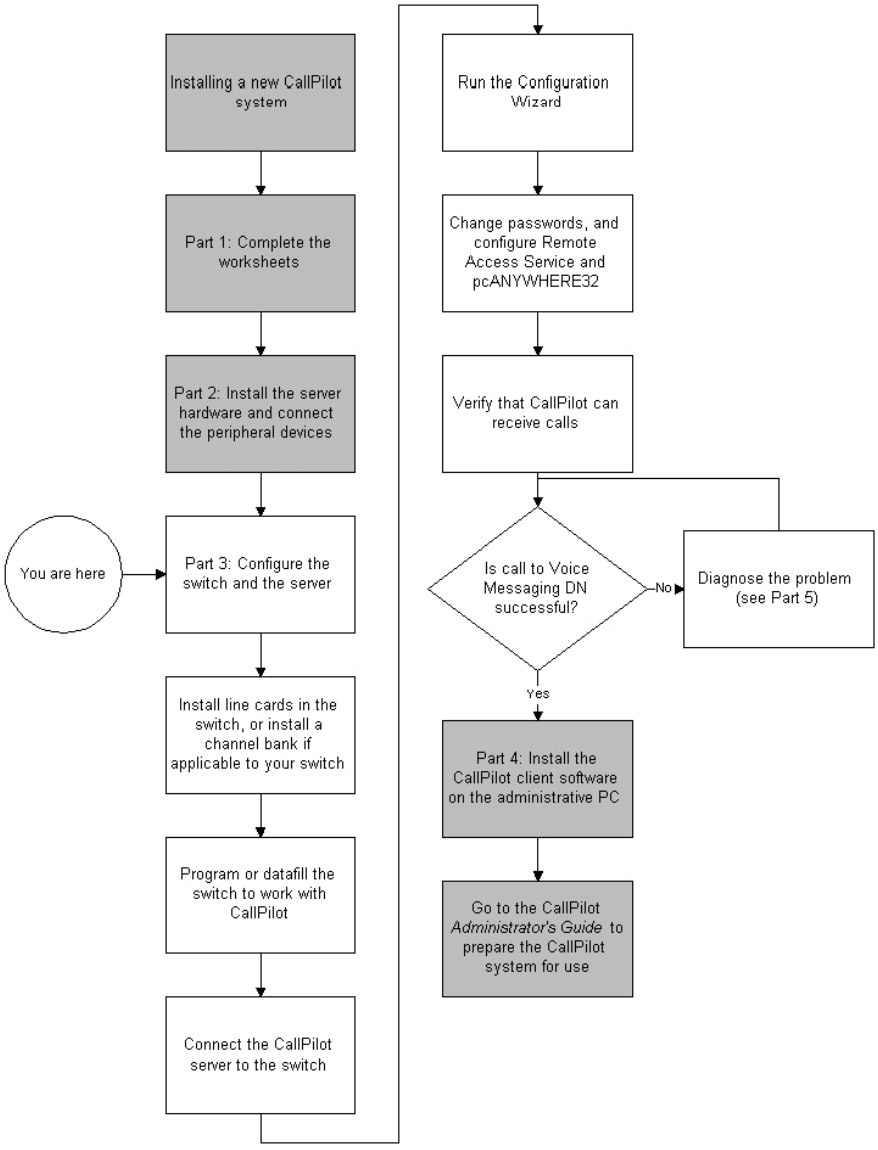
Installation flowcharts

CallPilot installation steps for Part 3 for 200i servers



Note: For the 200i server, start at Chapter 3, "Switch programming," and skip Chapters 2, 4, and 5 of this guide.

CallPilot installation steps for Part 3 for tower and rackmount servers



The installation steps begin at Chapter 2, “Installing the switch line cards,” on page 73. Locate the section for your switch in each chapter. Complete the steps in one chapter before continuing to the next chapter.

Multimedia channels in the CallPilot server

Multimedia Processing Units

Calls that come in to CallPilot need processing power to support the fax and speech recognition features, as well as the basic voice features. This processing power is provided by Multimedia Processing Units (MPUs) in the CallPilot server. The MPB16-4 board and the MPC-8 cards in the CallPilot server provide the MPUs.

Types of multimedia channels

Different CallPilot services deal with different types of media, and certain types of media need more channel resources to process them. As a result, three types of multimedia channels handle the various types of CallPilot services.

Each type of channel terminates on a different number of MPUs, based on how much processing power is required. For example, integrated fax and voice data takes twice as much processing power as voice-only media. A fax channel, therefore, terminates on two MPUs.

Channel type	Description	# of MPUs
Voice	One voice channel requires one MPU.	1 MPU
Fax	Fax needs twice as much processing power as voice-only media, and, therefore, requires 2 MPUs for one fax channel.	2 MPUs
ASR (speech recognition)	Speech recognition needs four times as much processing power as voice-only media, and, therefore, requires 4 MPUs for one speech recognition channel.	4 MPUs

The remainder of this chapter describes how different switches interact with CallPilot.

Section A: Meridian 1 switch

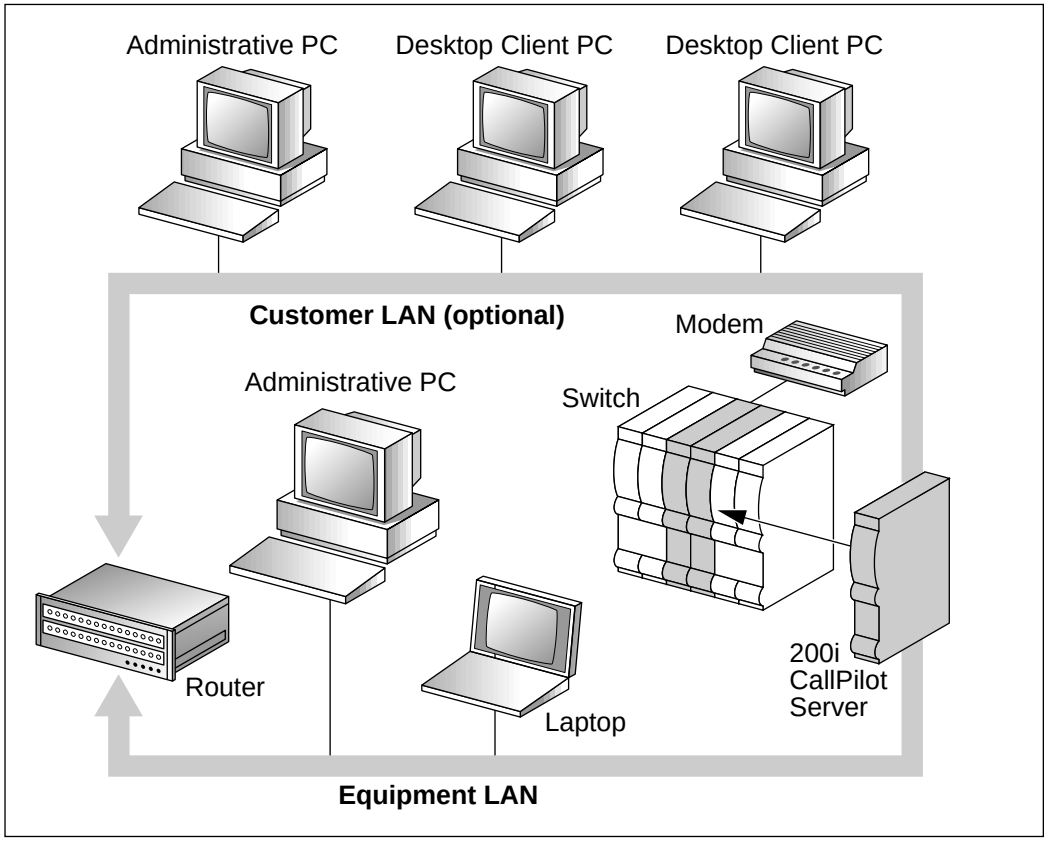
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Understanding the interaction between the switch and the CallPilot system

Example for 200i servers

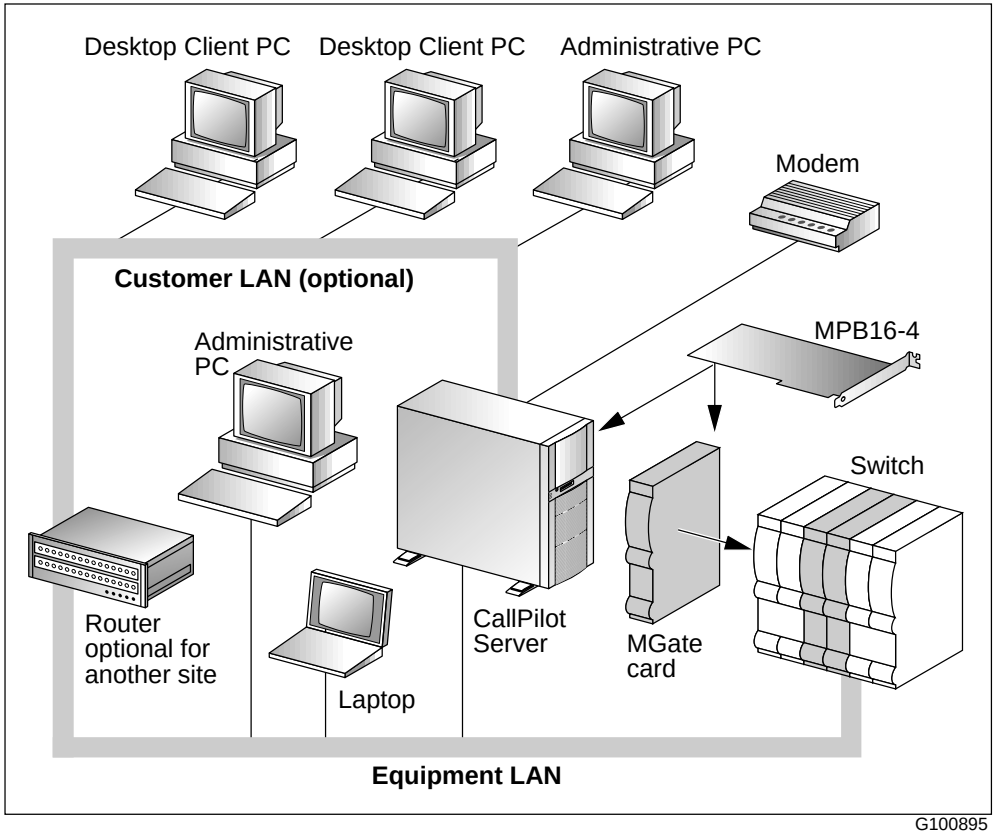
With an IPE server (for example, the 200i server), the server is inserted into a card slot in the Meridian 1 switch, and the MGate card is not used.



G100894

Example for tower and rackmount servers

This diagram shows a typical tower server configuration. You can use the same configuration for a rackmount server.



Components

CallPilot server

The CallPilot server connects to the switch, the administrative PC, and, where Desktop Messaging is enabled, the Customer LAN (CLAN).

MGate card

The MGate card is a line card that is installed in the switch. The MGate card sends the voice and data signals to the MPB16-4 boards in the CallPilot server.

Note: The 200i CallPilot server does not use an MGate card.

MPB16-4 board

The MPC-8 cards that reside in the MPB16-4 board process the voice and data signals that arrive from the switch.

An MPB16-4 board has two integrated MPC-8 cards and four bays for additional optional MPC-8 cards.

Each CallPilot server ships with at least one MPB16-4 board.

Note: The 200i CallPilot server does not use an MPB16-4 board. The 200i server has an integrated MPC-8 card and two bays for additional optional MPC-8 cards.

Administrative PC

CallPilot client software is installed on a PC that runs Windows 95, Windows 98, or Windows NT Workstation. The administrative PC provides

- administrative ability for the switch, server, and CallPilot software
- access to CallPilot operational measurement reports
- the ability to develop multimedia applications with both voice and fax functionality

You can connect an administrative PC directly to the server, remotely through a modem, or via a connection to the CLAN or ELAN.

Modem

The server connects to a modem to allow remote access by a support PC for installation, maintenance, and diagnostics.

Desktop client PCs

You can install Desktop client messaging software on client PCs to enable mailbox users to receive phone, fax, and voice mail on their PCs. Refer to the *Desktop Messaging Software Installation and Maintenance Guide.*

Overview of switch and server configuration

Introduction

The later chapters provide detailed instructions for switch programming and server configuration. The following table summarizes the steps that relate to switch programming:

On the Meridian 1	On the server
Create one ACD agent queue to hold all agents that service CallPilot.	Enter the TNs that are configured on the switch in the Configuration Wizard.
Create two CDN queues—a primary CDN for voice messaging and a secondary CDN for multimedia messaging.	Enter the CDN for Voice Messaging in the Configuration Wizard.
Create a phantom DN or dummy ACD DN for each service that needs to be directly dialable.	Use the CDNs, phantom DNs, and dummy ACD DNs to set up services in the Service Directory Number (SDN) Table. This is done after the CallPilot server installation is completed.

Components of call routing for Meridian 1 switches

Automatic Call Distribution

Automatic Call Distribution (ACD) is a feature on the Meridian 1 that allows a number of programmed phonesets, known as ACD agents, to share equally in answering incoming calls. In the case of CallPilot, the call-queuing capability of ACD is not used, but the call-handling capability of ACD agents is used.

All channels for CallPilot on the switch are defined as agents of a single ACD queue.

How CallPilot uses ACD virtual agents

All ACD agents that service CallPilot are put into a single ACD agent grouping. These agents correspond to DS0 channels on the CallPilot server. Agents are programmed in overlay 11 as 2008 Digital (Aries) sets with MMA class of service (Multimedia Messaging Allowed). These are not, however, physical phonesets. These are Terminal Numbers (TNs) that are programmed to look like real digital sets to the switch.

Control Directory Number

For CallPilot, you configure one Control Directory Number (CDN) on the switch for each of the following services:

- a primary CDN for Voice Messaging
- a secondary CDN for Multimedia Messaging

A CDN queue is like an ACD queue. The key difference is that calls in the CDN queue are managed by CallPilot, while calls in an ACD queue are managed by the Meridian 1.

Calls are routed to the CDN queue directly or by terminating on a phantom DN or dummy ACD queue, which is forwarded to the CDN.

How CallPilot uses CDNs

Normally, a CDN operates in control mode. In control mode, call treatment and call routing are under the control of the CallPilot server. The switch simply provides routing to CallPilot. The server specifies the type of default treatment to be given to waiting calls. It processes the calls on a first-come, first-served basis and determines to which DS0 channel the call is routed. DS0 channels are configured as agents of an ACD queue.

A CDN can also operate in default mode (that is, CallPilot is offline or the AML is down). In default mode, the switch takes over call routing control. Incoming calls receive default treatment provided by the default ACD DN associated with the CDN.

Call queuing

Incoming calls to the CDN are queued in the order of arrival. If calls cannot be processed immediately and need to wait in the queue until resources are available, the first caller in the queue is handled first.

Call routing

The CallPilot server determines which DS0 channel can provide the dialed service requested by a waiting call and instructs the switch to route the call to the associated ACD agent.

See also

- “Phantom DNs” on page 26
- “SDN Table and Service Directory Numbers” on page 28

Phantom DNs

What is a phantom DN?

Instead of using phonesets or dummy ACD DNs to route calls, CallPilot can use "virtual telephones" that exist only in software and have no associated hardware. The DN associated with one of these phantom phones is called a phantom DN.

Creating a Phantom DN

To create a phantom DN, you first create a phantom loop and then define a TN within that loop. The system knows that any TN defined within that loop is a phantom TN. Each phantom TN is assigned a DN (the phantom DN). This DN becomes a service's dialable number by entering it in the SDN Table in CallPilot.

Phantom DNs forward to a CDN queue

Incoming calls cannot queue up in the phantom TN as they arrive. As soon as a call arrives at a phantom DN, the system forwards it to a CDN queue before it is routed to a multimedia channel for further call handling. However, the system remembers the phantom DN to keep track of the requested service.

Services that should use phantom DNs

Nortel Networks strongly recommends that you use either phantom DNs or dummy ACD DNs (see "Configuring dummy ACD DNs" on page 117) for the following services:

- all services created with Application Builder that are directly dialable by callers
- Speech Activated Messaging
- Paced Speech Messaging
- Voice Item Maintenance
- Fax Item Maintenance
- Express Voice Messaging
- Express Fax Messaging

Networking services

The following Networking services can either have a unique phantom DN configured on the switch, or they can share the phantom DN (and SDN) of another service:

- Enterprise Networking
- AMIS Networking
- Integrated AMIS Networking

Share DNs when your supply of available DNs on the switch is low. Create a unique DN when you need to closely monitor each service (for example, so that each service generates its own traffic data in Reporter).

Note: After you configure the SDN in CallPilot, specify with which service you are sharing the SDN.

Example

You are ready to put a new menu application into service. Phantom DN 6120 is available on the switch. In the SDN Table, you enter 6120 as the SDN for this service. This is the number that callers dial to access the menu.

SDN Table and Service Directory Numbers

Introduction

When a call arrives at a CDN queue either directly or indirectly from a phantom DN or dummy ACD DN, the switch gives the caller ringback treatment. While this happens, the dialed DN is looked up in the SDN Table in CallPilot to determine what service is required.

What is the SDN Table?

The SDN Table is where you enter the CDNs, phantom DNs, or dummy ACD DNs that have been configured on the switch for your CallPilot services. In this table, the DN (now called an SDN) is associated with a specific service. The SDN Table is administered from the CallPilot administrative client PC.

What the SDN table controls

In addition to specifying which service should be activated when a number is dialed, the SDN configuration also controls the following:

- the type of channel the service acquires (voice, fax, or speech recognition)
- the number of channels allocated to the service

  The SDN configuration determines the minimum number of channels guaranteed to a service for simultaneous use and the maximum number of channels that you can use at one time.
- the session behavior for certain services, such as those created with Application Builder (including the maximum session length and a number of fax options)

Types of SDNs

There are two types of SDNs—inbound SDNs and outbound SDNs.

Inbound SDNs require DNs on the switch

Services that callers dial up need inbound SDNs. An inbound SDN corresponds to either a CDN, a phantom DN, or a dummy ACD DN on the switch, since callers must be able to dial in to the switch with a unique number.

Outbound SDNs do not need DNs on the switch

Callers do not dial outbound SDNs. The system uses outbound SDNs to place outbound calls. Since outbound SDNs do not accept incoming calls, a corresponding CDN, phantom DN, or dummy ACD DN is unnecessary on the switch.

The following services use outbound SDNs:

- outcalling services (Remote Notification, Delivery to Telephone, Delivery to Fax)
- networking services (AMIS and Enterprise)

Understanding call routing

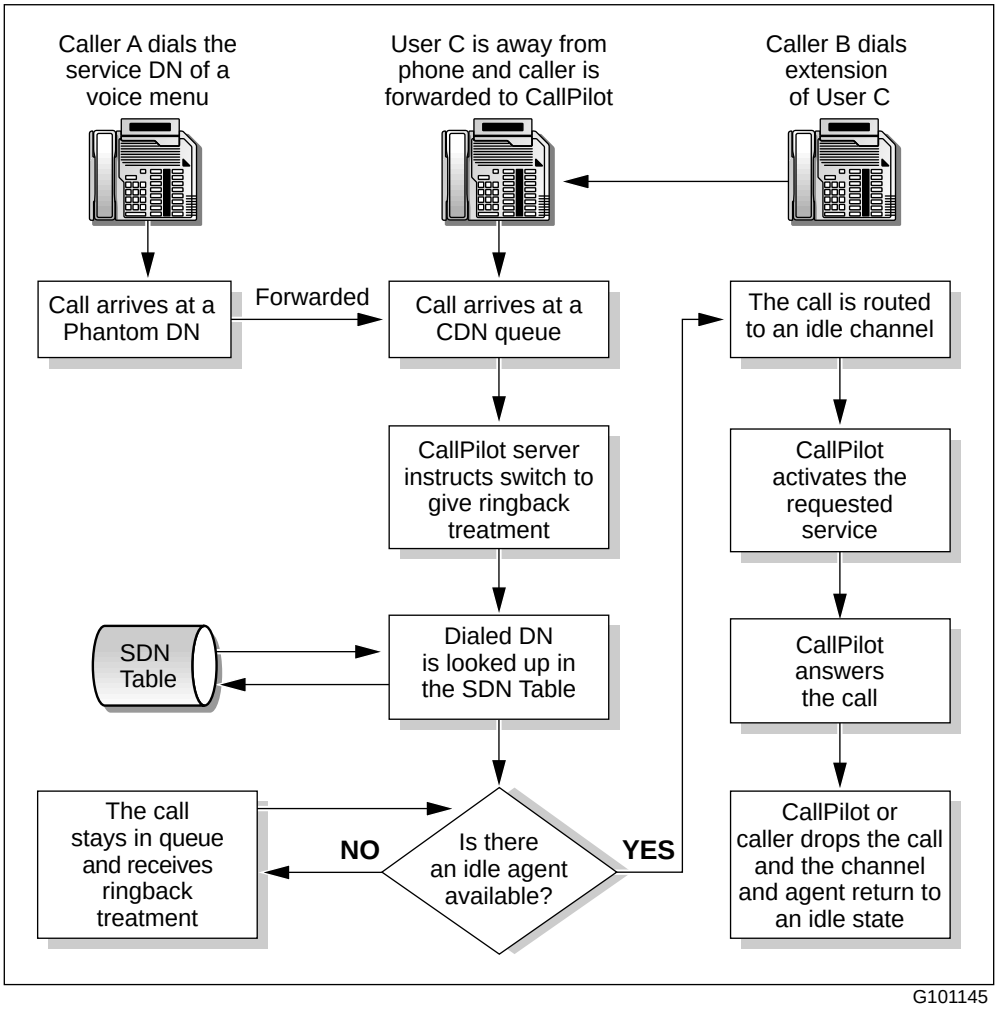
Introduction

The switch accepts incoming calls, queues them, and routes them to the appropriate CallPilot services. Therefore, it is important to understand how call routing works so that you configure your switch properly to support CallPilot.

Call flow example

ATTENTION

The example below uses a phantom DN. The same call flow occurs when a caller dials a dummy ACD DN.



Example use of phantom DNs or dummy ACD DNs

ATTENTION

The example below uses phantom DNs. The same call flow occurs when a caller dials a dummy ACD DN.

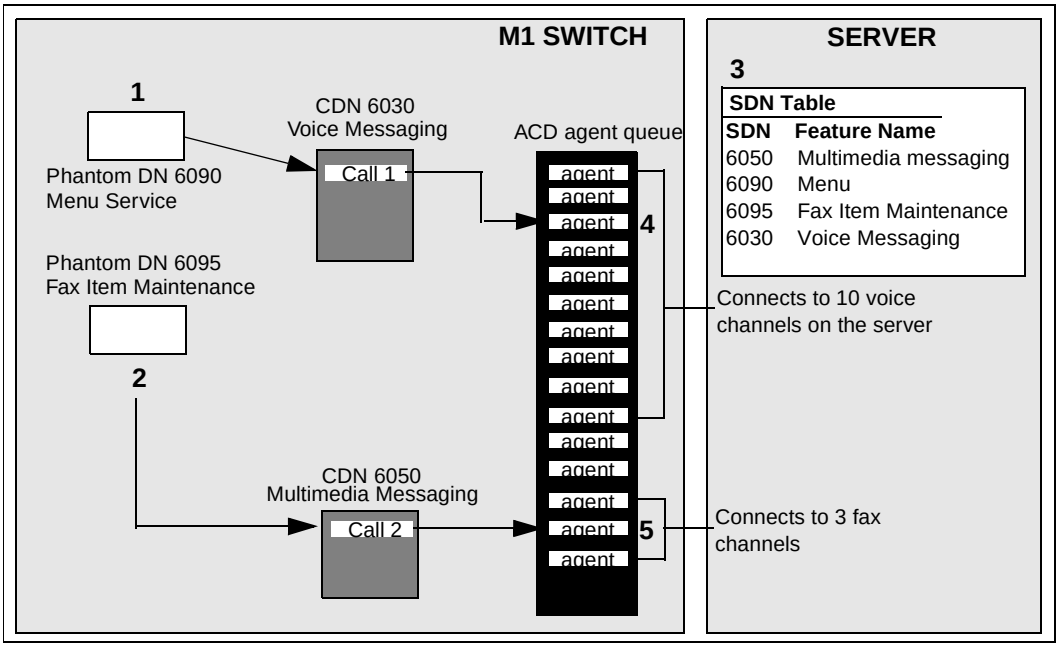
Two CDN queues have been configured:

- Voice Messaging (6030)
- Multimedia Messaging (6050)

Two phantom DNs have been configured (the same scenario applies if these are set up as dummy ACD DNs):

- 6090 is the DN for a menu service (without fax items)
- 6095 is the DN for Fax Item Maintenance

In this example, when the calls come in to the switch, there are no available channels and the calls are queued as a result.



What happens when services are dialed up

1. A caller dials 6090 to access a menu service. This phantom DN forwards to CDN 6030 because the menu contains no fax or speech recognition capability.
2. Another caller dials 6095 to access the Fax Item Maintenance service. The call is forwarded to CDN 6050.
3. CallPilot looks up the DNs in the SDN Table on the server to check which service is being requested, the media type required, and the channel allocations for each service.
4. Call 1, to the menu service that contains only voice functions (no fax items), is routed to an ACD agent that is available to handle voice.
5. Call 2, to the Fax Item Maintenance service, is routed to an ACD agent that is available to handle fax.

How multimedia channels are acquired by callers

Introduction

The system uses the information gathered from the SDN configuration to check the ACD agent queue to see if there is an idle multimedia channel of the type required by the service.

What happens if no channels are idle

If there is an idle channel (of the needed media type), the system passes the call to CallPilot.

If there are no idle channels that meet the requirements defined in the SDN Table, the call remains in the CDN queue and the system applies a delay treatment.

The default delay treatment

The server specifies a default delay treatment of ringback. This means that while a call waits in a queue, the caller hears the phone ringing.

The call is answered

Once a multimedia channel of the appropriate type becomes idle, the call arrives at the multimedia channel and is passed to CallPilot.

Since the SDN Table has already been checked, the requested service is known and is activated at this point. The service also answers the call.

Based on which service is activated, one of the following happens:

- The appropriate prompt is played.
- CallPilot receives a fax.
- CallPilot records a message.

The call is dropped

Once CallPilot or the caller drops the call, the multimedia channel returns to an idle state, ready to be acquired by another call.

What's next?

Continue with Section A: "Meridian 1 switch," on page 75.

Section B: MSL-100/DMS-100 switch

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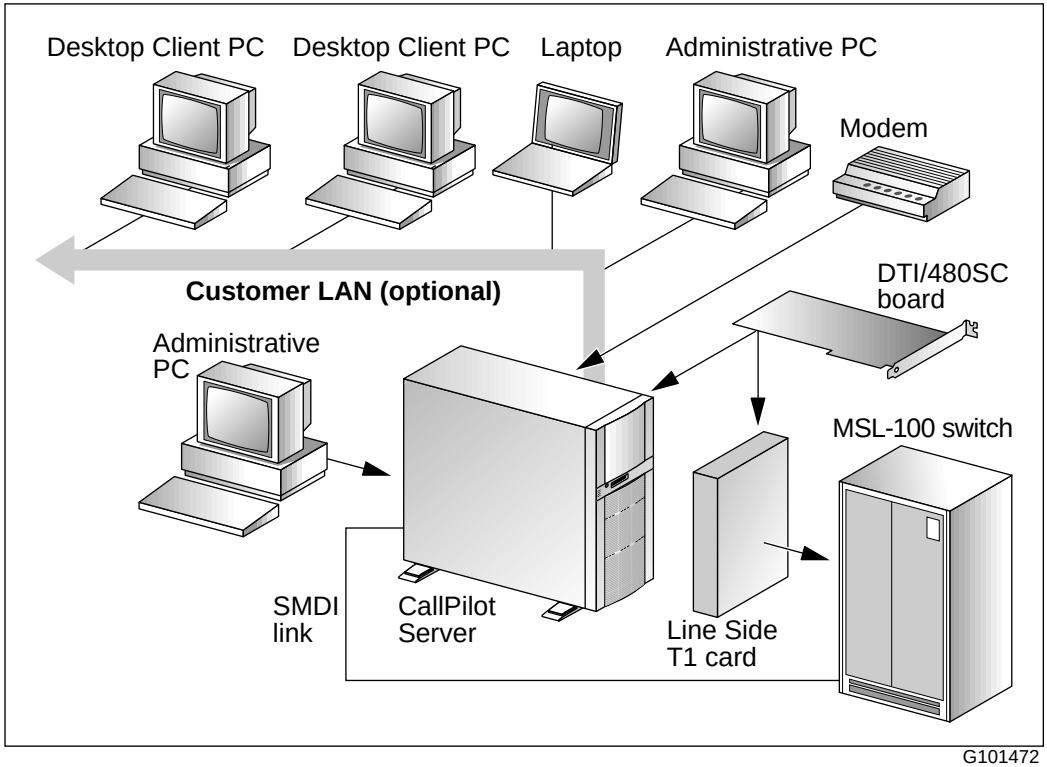
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Understanding the interaction between the switch and the CallPilot system

Introduction

You can install CallPilot software on a tower or a rackmount CallPilot server.

The CallPilot server works with the switch and administrative PC to provide messaging services to calls. The diagram that follows shows a typical tower configuration connecting to an MSL-100 switch. The same configuration can be used for a rackmount server.



Components

The switch

The MSL-100 switch uses T1 channels and an SMDI link to exchange data with the CallPilot server.

Line Side T1 cards

The Line Side T1 cards in the MSL-100 switch send the voice and data signals to the CallPilot server.

The CallPilot server

The CallPilot server (tower or rackmount model) connects to the switch, the administrative PC, and, where Desktop Messaging is enabled, the Customer LAN (CLAN).

Dialogic DTI/480SC board

One or more DTI/480SC boards reside in the CallPilot server. Each DTI/480SC board supports up to two T1 links to the switch. Each T1 link supports up to 24 channels. Calls from the switch arrive at the DTI/480SC board and are passed on to the MPB16-4 boards for call processing.

MPB16-4 board

The MPC-8 cards that reside in the MPB16-4 board process the voice and data signals that pass through the DTI/480SC boards.

An MPB16-4 board has two integrated MPC-8 cards and four bays for additional optional MPC-8 cards.

Each CallPilot server ships with at least one MPB16-4 board.

The administrative PC

CallPilot client software is installed on a PC that runs Windows 95, Windows 98, or Windows NT Workstation. The administrative PC provides

- administrative ability for the switch, server, and CallPilot software
- access to CallPilot operational measurement reports
- the ability to develop multimedia applications with both voice and fax functionality

You can connect an administrative PC directly to the server, remotely through a modem, or via a connection to the CLAN.

Modem

The server connects to a modem to allow remote access by a support PC for installation, maintenance, and diagnostics.

Desktop client PCs

You can install Desktop client messaging software on client PCs to enable mailbox users to receive phone, fax, and voice mail on their PCs. Refer to the *Desktop Messaging Software Installation and Maintenance Guide.*

Overview of switch and server configuration

Introduction

The later chapters provide detailed instructions for switch programming and server configuration. The following table summarizes the steps that relate to switch programming:

On the MSL-100/DMS-100 switch	On the server
Set up one UCD group for each media type on your system. Each UCD group must have a unique DN.	Enter the UCD group information in the Configuration Wizard.
Create line DNs for each service that needs to be directly dialable. These DNs must be set up to be forwarded to one of the UCD groups created for each media type.	Enter the line DNs as SDNs in the Service Directory Number Table. Associate each one with a directly dialable service. This is done after the CallPilot server installation is completed.
Program subscriber sets. Set call forwarding to the primary Voice Messaging DN in circumstances of Busy or No Answer. Program Message Waiting Indicator.	Not applicable.

Components of call routing for MSL-100/DMS-100 switches

Uniform Call Distribution

Uniform Call Distribution (UCD) is a feature on the MSL-100/DMS-100 switch that enables a number of telephones connected to the switch, known as agents, to share equally in answering incoming calls.

UCD agent

Agents are programmed on the switch to serve a particular UCD group. Agents are programmed as phones on the switch.

UCD groups

UCD groups are queues that contain agents. CallPilot requires that you set up a UCD group for each media type on CallPilot. A UCD group handles calls for a particular media type.

For example, the UCD group set up for Voice Messaging is associated with the Voice Messaging service in CallPilot. All calls handled by the Voice Messaging UCD group are routed to voice channels in CallPilot.

In the CallPilot administration software, the SDN Table is used to associate the UCD DNs with CallPilot services.

Call queuing

Call queuing is supported for UCD groups. If a call arrives when all the ports in that UCD group are busy, it can wait in the queue until resources are available. When the call is queued, the switch provides ringback to the caller. The first caller in the queue is handled first.

Line DNs used as Service DNs

Line DNs can also accept calls. They do not directly route calls to services. Instead, they forward calls to a UCD group for call handling. However, the dialed DN is passed along to CallPilot and is used to determine which service is requested.

A Call Forward Fixed (CFF) DN or a Call Forward Universal (CFU) DN must be defined for all line DNs. The CFF DN or CFU DN is set to the primary DN of the UCD group to which the line DN forwards calls for call handling.

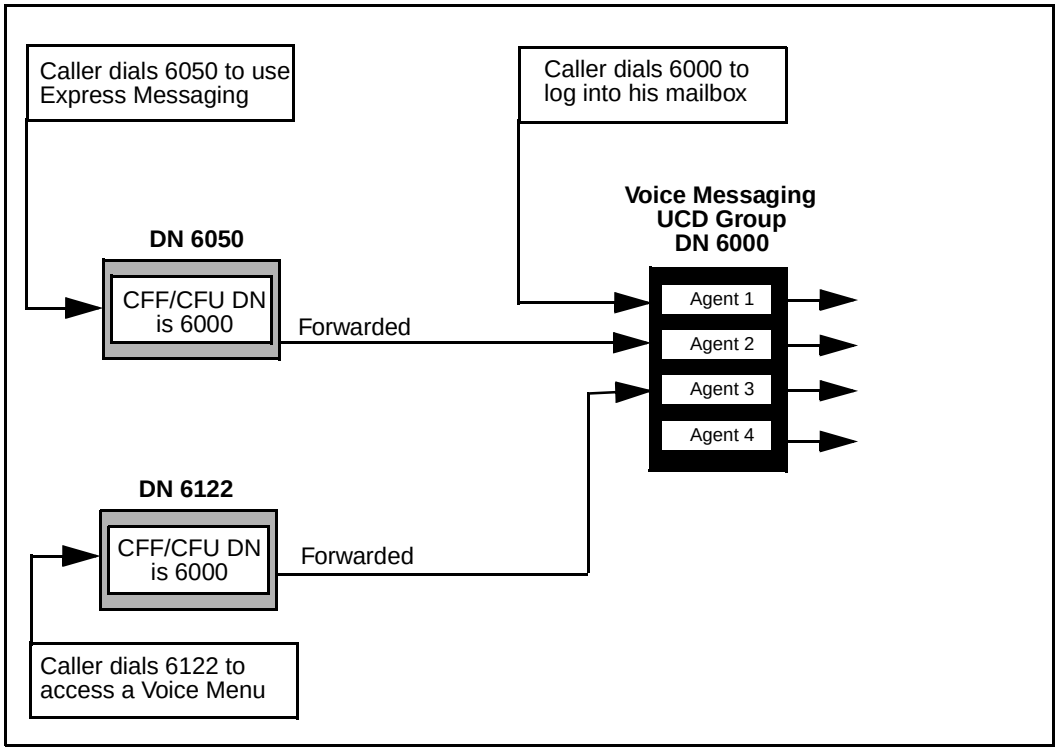
Why use line DNs?

Many CallPilot services that you configure must be directly accessible. That is, you want callers to be able to dial a number to access the service.

Each directly dialable service needs a unique number, or DN, so that when a caller dials the DN, the correct service starts and the appropriate prompts play.

Example use of line DNs and UCD groups

Two line DNs have been set up. One DN (6050) is for express messaging. The other DN (6122) is for a Voice Menu. They both forward to UCD DN 6000 (the Voice Messaging UCD group).



Dedicating one or more ports to a particular service

In the scenarios described previously, several services share ports on the switch (and the matching ports on the CallPilot server) on a first-come, first-served basis. You might want to dedicate a port to a particular service, so that it is always available to the service when it wants a port. However, Nortel Networks advises that you do not dedicate ports unless it is deemed absolutely necessary, since it decreases overall efficiency in handling calls.

To dedicate a port to a particular service, create a UCD group and assign as many UCD agents to this UCD group as you want dedicated to this service. In the SDN Table, associate the service with the dedicated UCD group. Do not associate other services with this UCD group. Users who dial this UCD group DN receive that service.

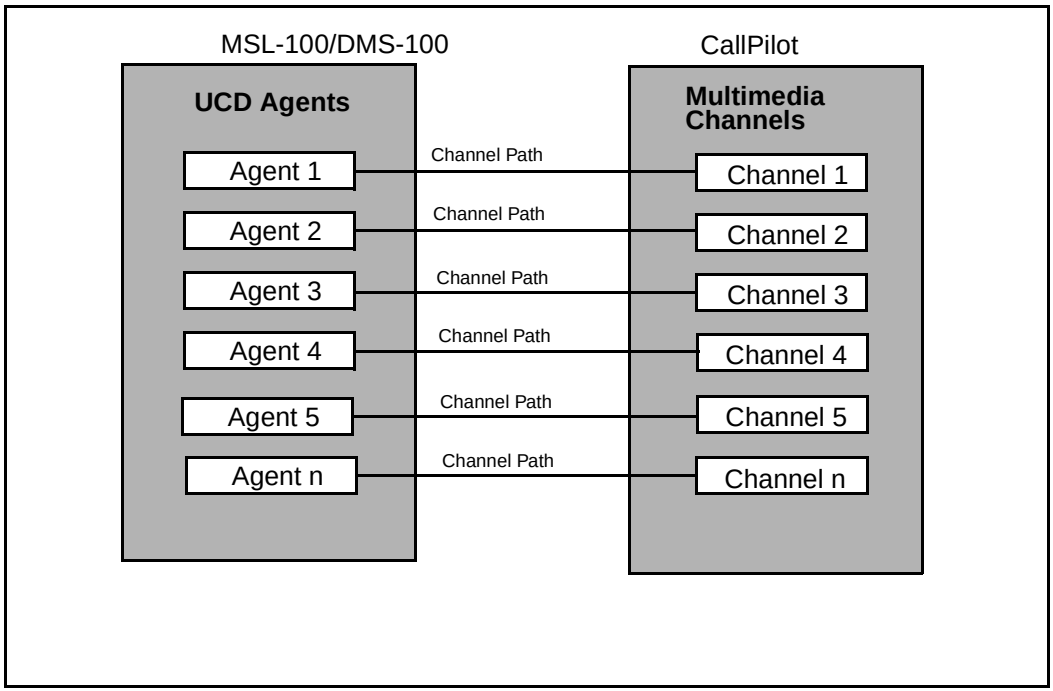
Understanding call routing

Introduction

Each agent in a UCD group on the MSL-100/DMS-100 is associated with a specific T1 channel in CallPilot.

Example

This simplified diagram shows how agents on the switch connect to channels in CallPilot.



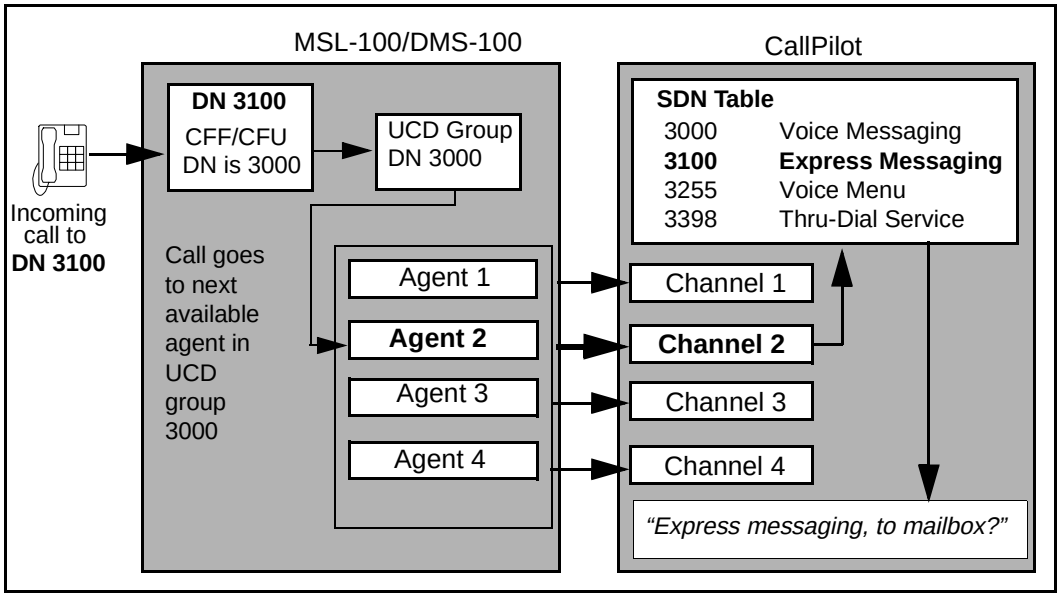
Directing calls to services

CallPilot uses UCD to perform its call handling functions. However, instead of being directed to agents or phonesets, incoming calls are directed to CallPilot services.

Call routing example

An incoming call to DN 3100 is forwarded to UCD group 3000. It is directed to the first available agent. It is then connected to a CallPilot channel of the proper media type and routed to the SDN Table.

In the SDN Table, CallPilot looks up the DN that was dialed to identify the requested service. CallPilot then starts the service and plays the appropriate prompts.



What's next?

Continue with Section B: "MSL-100/DMS-100 switch," on page 81.

Section C: Lucent, Mitel, or Rolm switch

In this section

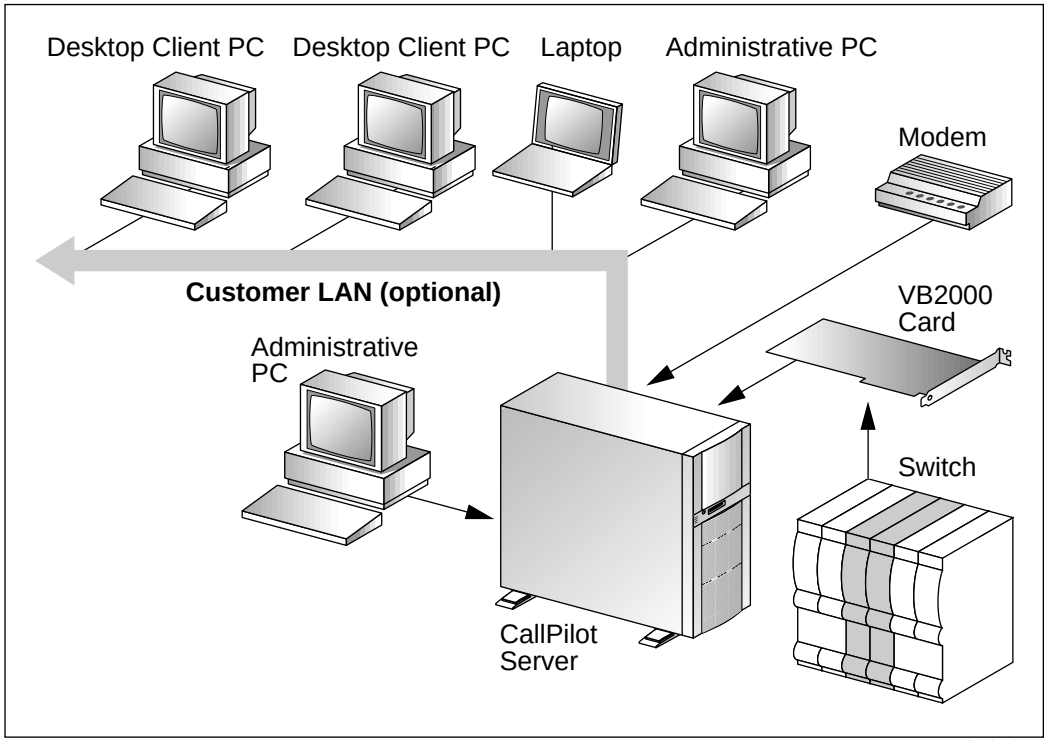
Understanding the interaction between the switch and the CallPilot system 50
Overview of switch and server configuration 53
Components of call routing for Lucent, Mitel, and Rolm switches 55
Understanding call routing 60

Understanding the interaction between the switch and the CallPilot system

Introduction

You can install CallPilot software on a tower or a rackmount CallPilot server.

The CallPilot server works with the switch and administrative PC to provide messaging services to calls. The diagram that follows shows a typical tower configuration. The same configuration can be used for a rackmount server.



G101374

The switch

In this configuration, the Lucent, Mitel, or Rolm switch uses digital lines to exchange data with the CallPilot server.

The CallPilot server

The CallPilot server (tower or rackmount model) connects to the switch, the administrative PC, and, where Desktop Messaging is enabled, the Customer LAN (CLAN).

VB2000 card

One or more VB2000 cards reside in the CallPilot server. Each VB2000 card contains eight ports where the digital lines from the switch terminate.

When signals arrive from the switch, the VB2000 provides the interface that interprets them and passes them to the MPB16-4 board. When CallPilot transmits data to the switch, the VB2000 card converts it to emulate the signals sent by digital sets supported by that switch.

MPB16-4 board

The MPC-8 cards that reside in the carrier board process the voice and data signals that pass through the VB2000 card.

An MPB16-4 board has two integrated MPC-8 cards and four bays for additional optional MPC-8 cards.

Each CallPilot server ships with at least one MPB16-4 board.

The administrative PC

CallPilot client software is installed on a PC that runs Windows 95, Windows 98, or Windows NT Workstation. The administrative PC provides

- administrative ability for the switch, server, and CallPilot software
- access to CallPilot operational measurement reports
- the ability to develop multimedia applications with both voice and fax functionality

You can connect an administrative PC directly to the server, remotely through a modem, or via a connection to the CLAN.

Modem

The server connects to a modem to allow remote access by a support PC for installation, maintenance, and diagnostics.

Desktop client PCs

You can install Desktop client messaging software on client PCs to enable mailbox users to receive phone, fax, and voice mail on their PCs. Refer to the *Desktop Messaging Software Installation and Maintenance Guide.*

Overview of switch and server configuration

Introduction

The later chapters provide detailed instructions for switch programming and server configuration. The following table summarizes the steps that relate to switch programming:

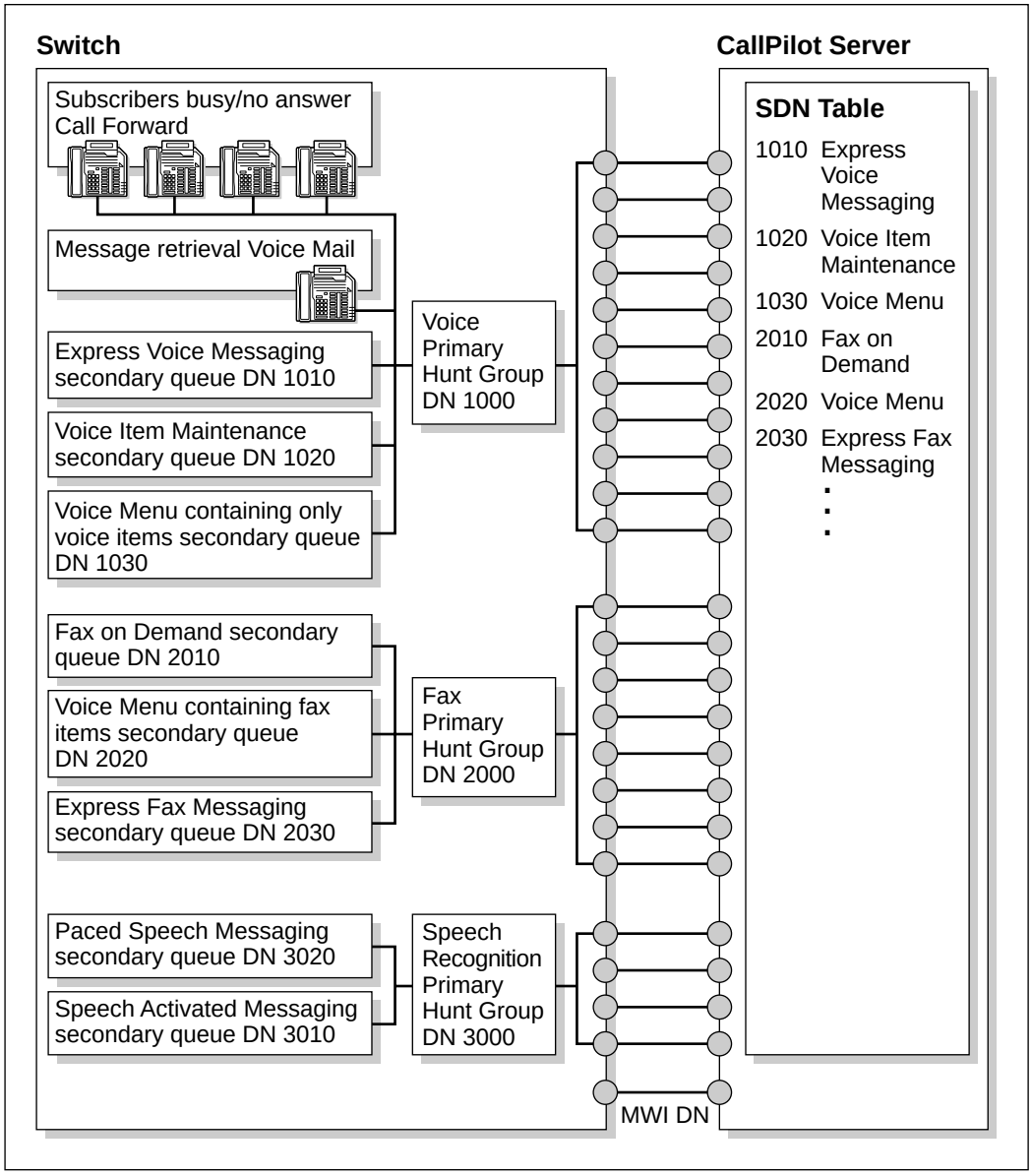
On the Lucent/Mitel/Rolm switch	On the server
Create and configure one digital set for each VB2000 port (eight per card) on your CallPilot server. Assign these sets to the ports on the switch that you plan to connect to the VB2000 ports on CallPilot.	Not applicable.
Designate one port for processing Message Waiting Indicator signals.	Enter the DN for this port in the Configuration Wizard.
Set up primary hunt groups (at a minimum, one per media type on your system). Assign the digital sets configured on the switch to the hunt groups. If required, create coverage paths pointing to these hunt groups.	Enter the hunt groups and their associated line DNs in the Configuration Wizard.
Create a secondary queue (a forwarded hunt group that contains no DNs, or a forwarded set), for each service that needs to be directly dialable.	Enter the DNs for the secondary hunt groups or forwarded sets as SDNs in the Service Directory Number Table. Associate each one with a directly dialable service. This is done after the CallPilot server installation is completed.

On the Lucent/Mitel/Rolm switch	On the server
Program subscriber sets. Set call forwarding to the Voice or Fax hunt group (as appropriate) in circumstances of Busy/No Answer. If necessary, program a Message Waiting Indicator. For voice users, publish the Voice primary hunt group DN, or program it into a key on the subscriber set to provide a route for retrieving messages, or both. For Mitel switches, this programming is done via the phoneset interface.	Not applicable.

Components of call routing for Lucent, Mitel, and Rolm switches

Hunt groups

Hunt groups are a feature on the Lucent, Mitel, and Rolm switches that allows multiple telephones to be available to answer incoming calls to a single number. In the case of CallPilot, the telephones are actually ports on the CallPilot server. CallPilot “answers” the call and provides the appropriate service to the caller.


Switch
CallPilot Server
Subscribers busy/no answer Call Forward
Message retrieval Voice Mail
Express Voice Messaging secondary queue DN 1010
Voice Item Maintenance secondary queue DN 1020
Voice Menu containing only voice items secondary queue DN 1030
Voice Primary Hunt Group DN 1000
Fax on Demand secondary queue DN 2010
Voice Menu containing fax items secondary queue DN 2020
Express Fax Messaging secondary queue DN 2030
Fax Primary Hunt Group DN 2000
Paced Speech Messaging secondary queue DN 3020
Speech Activated Messaging secondary queue DN 3010
Speech Recognition Primary Hunt Group DN 3000
MWI DN
SDN Table
1010 Express Voice Messaging
1020 Voice Item Maintenance
1030 Voice Menu
2010 Fax on Demand
2020 Voice Menu
2030 Express Fax Messaging

G101373

Primary hunt groups

CallPilot uses primary hunt groups to allow different services of the same media type (voice, fax, speech recognition) to share the same group of ports on the CallPilot server. To allow different services to share a group of ports, create a hunt group made up of the individual DNs for those ports.

Note: A port can only belong to *one* primary hunt group.

For CallPilot's purposes, a hunt group can only carry one type of media traffic (voice, fax, or speech recognition). Therefore, at a minimum, you need one primary hunt group for each media type used on your system. Then, calls to any service of that media type can be forwarded to this hunt group and answered by the first available port in the hunt group.

Why assign CallPilot ports to one media type?

CallPilot ports are all physically identical and can carry traffic of any media type. However, you must assign each port to one of the media types carried on your CallPilot system (voice, fax, speech recognition, if installed). This serves two purposes:

- The profile of calls being presented to your system must match the number and types of channels purchased and licensed for your CallPilot system. If your server has the processing power for ten voice channels, four fax channels, and two speech recognition channels, then the ports on your CallPilot server must match those numbers. Otherwise, your server's call processing resources cannot keep up with the demand (twelve ports transmitting voice calls, only ten channels' worth of processing power), or they are partly idle (eight ports transmitting voice calls, ten channels' worth of processing power in the server devoted to voice calls).

  Each port on your switch, which maps one-to-one to ports on your CallPilot server, must be devoted to a particular media. The number of ports allotted to each medium must match the number of channels allocated to that medium in your CallPilot server.
- A primary hunt group can only contain ports of one media type. If you mix media types in a primary hunt group (a fax port with voice ports), then the process that allocates processing resources to different channels cannot work properly.

Secondary queues

You must create a secondary queue for each directly dialable service in your CallPilot system, except for Call Answering (Voice or Fax), Voice Messaging, and Fax Messaging. Based on the switch, a secondary queue can be one of

- a hunt group with no DNs in it, which is forwarded to a primary hunt group
- a phoneset that is always call forwarded to a primary hunt group

The function of a secondary queue is to provide a unique DN for each directly dialable service. A caller dials the DN for a service; the secondary queue that matches that DN forwards the call to the appropriate primary hunt group, which puts it through to the CallPilot server on the first available port. CallPilot uses the "called DN," which is the secondary queue's DN, to identify the service it must provide for this particular caller.

Which services require a secondary queue DN?

CallPilot services that accept incoming calls (except Voice Call Answering, Fax Call Answering, Voice Messaging, and Fax Messaging) require a DN on the switch. Services that make outgoing calls only (such as Remote Notification) do not require a DN on the switch. By assigning a secondary queue DN to a service, you give it a unique DN that is recognized by the switch and by CallPilot whenever a call comes in for that service.

How does the CallPilot server recognize a service DN?

The secondary queue DN that is defined on the switch must also be defined on the server as a Service Directory Number (SDN). Each secondary queue DN is mapped to a specific service in the SDN Table. The DN defined on the switch and server must be the same.

Dedicating one or more ports to a particular service

In the scenarios described previously, several services share ports on the switch (and the matching ports on the CallPilot server) on a first-come, first-served basis. You might want to dedicate a port to a particular service so that it is always available to the service when it wants a port. However, Nortel Networks advises that you do not dedicate ports unless it is deemed absolutely necessary, since it decreases overall efficiency in handling calls.

To dedicate a port to a particular service, create a primary hunt group with that port's DN as the only member. You cannot include this port's DN in any other hunt group. Add the primary hunt group DN to the SDN Table, and associate it with the service to which it is dedicated. Users who dial this DN receive that service.

Call queuing

Lucent switches support call queuing for hunt groups. If desired, a queue can be set up to handle overflow for a primary hunt group. If a call arrives when all the ports in that hunt group are busy, it can wait in the queue until resources are available. When the call is queued, the switch provides ringback to the caller. The first caller in the queue is handled first.

Do not create queues for secondary hunt groups.

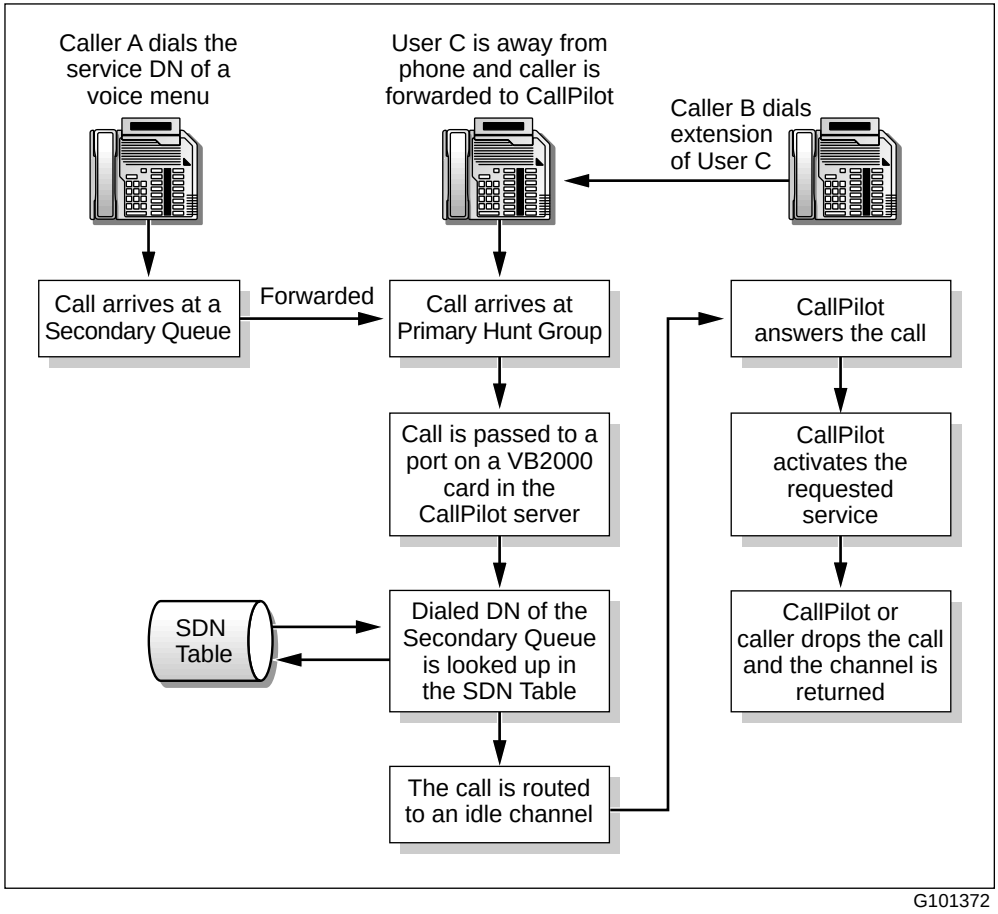
Understanding call routing

Introduction

The switch accepts incoming calls and routes them to the appropriate CallPilot services. You must understand how call routing works so that you can configure your switch and your CallPilot server to interact properly.

How calls are routed

The following flowchart shows how, based on the dialed number, a call is routed to the appropriate CallPilot service. The rest of this section explains the various stages in this process in more detail.



Example

You are ready to put a new menu application into service. DN 2222 is available on the switch. You decide to use this DN for the service.

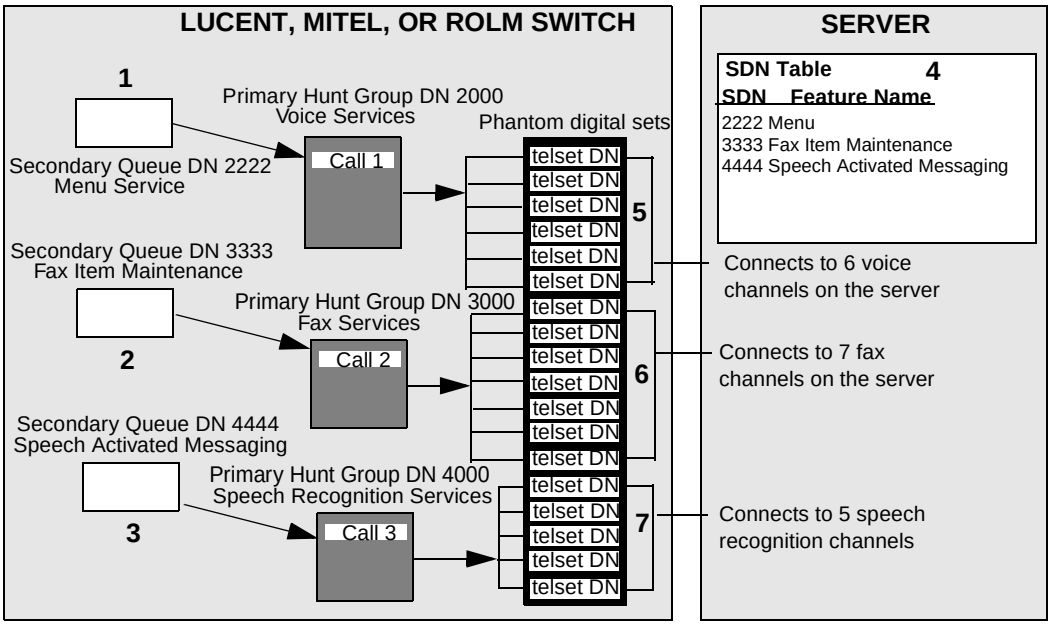
On the switch, create a secondary queue with the DN 2222. Forward it to a primary hunt group that carries the appropriate media type. For example, if the menu contains voice only, it can forward to a voice primary hunt group. If it receives and sends fax items, it must be forwarded to a fax primary hunt group. If it contains speech recognition services, forward it to a speech recognition primary hunt group.

In the SDN Table, enter 2222 as the SDN for this service. This is the number that callers dial to access the menu.

A sample setup

Three primary hunt groups have been configured—Voice (DN is 2000), Fax (DN is 3000), and Speech Recognition (DN is 4000).

Three secondary queue DNs have been configured: 2222 is the DN for a menu service (without fax or speech recognition items), 3333 is the DN for Fax Item Maintenance, and 4444 is the DN for Speech Activated Messaging.



What happens when services are dialed up

1. A caller dials 2222 to access the menu service. This menu service requires only voice processing (it contains no fax or speech recognition components).
2. This secondary queue 2222 has been set to forward to the voice primary hunt group 2000 because only voice processing is required. The call is picked up by the first available phantom digital set in the hunt group.
3. On the server, CallPilot looks up the DN in the SDN Table to check which service is being requested, the media type required, and the channel allocations for each service. CallPilot determines that the call to DN 2222 requires a voice channel, so the call is routed to a voice channel on the server.
4. Another caller dials 3333 to access the Fax Item Maintenance service. The call is forwarded to the fax hunt group 3000. CallPilot looks up the DN in the SDN Table and determines that a fax channel is required, so the call is routed to a fax channel on the server.
5. Another caller dials 4444 to access the Speech Activated Messaging. The call is forwarded to the speech recognition hunt group 4000. CallPilot looks up the DN in the SDN Table and determines that a speech recognition channel is required, so the call is routed to a speech recognition channel on the server.

What's next?

Continue with Section C: "Lucent, Mitel, or Rolm switch," on page 83.

Section D: Matra switch

In this section

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Components involved in call routing

Hunt groups

Hunt groups are a specific feature on Matra switches that allow a group of extension DNs to be dialable via a single DN called a hunt group DN.

CallPilot enables different services using the same media type (voice, fax, speech recognition) to share the same group of channels. To allow different services to share a group of channels, create a hunt group made up of the individual DNs for those channels.

A hunt group can only handle one type of media traffic (voice, fax, or speech recognition). The calls to any service using this media type must be forwarded to the appropriate hunt group, and the call is answered by the first available port in this hunt group.

Call queuing

If a call arrives when all the ports in the hunt group are busy, the caller receives a busy signal.

Primary hunt group

On Matra switches, the primary hunt group is the one typically used for Voice Messaging. The following table shows a typical configuration:

Primary hunt group	Voice messaging
Secondary hunt group	Multimedia messaging
Tertiary hunt group	Speech activated messaging
Other hunt groups (optional)	Express fax messaging
	Express voice messaging
	Applications created via Application Builder

Phantom DNs (virtual digital set DNs)

A phantom DN provides a unique DN for each directly dialable service, even though there is no need to statically allocate one or more channels via a hunt group. A caller dials a service DN; the call is then forwarded to the appropriate hunt group, using the call forwarding feature for this phantom DN. CallPilot uses the “called DN” information provided by the switch via Q23 signaling to identify where the call should be routed.

A phantom DN must be defined for each directly dialable service in CallPilot, except for Multimedia Messaging, Voice Messaging, and Speech Recognition, which should be accessible via hunt group DNs. The phantom DN must be permanently call forwarded to the appropriate hunt group. For example, if the called service uses voice only, the phantom DN must be forwarded to Voice Messaging. If the service called uses fax services, it must be forwarded to Multimedia Messaging.

Note: Phantom DN is the terminology used for CallPilot. Virtual digital set DN is a term used in switch programming.

User primary and secondary DN

A digital phoneset can be accessed through multiple extension DNs. The primary DN is generally the DN used to establish a voice channel. The primary DN can be forwarded to the Voice Messaging Service whenever the user is away.

With CallPilot, a secondary DN can be set up by the switch administrator to provide virtual fax access. To achieve this goal, it is mandatory that the secondary DN remains permanently call forwarded to Multimedia Messaging.

If a caller calls the secondary DN, the call is forwarded to the appropriate service (Multimedia Messaging), and provides a fax tone.

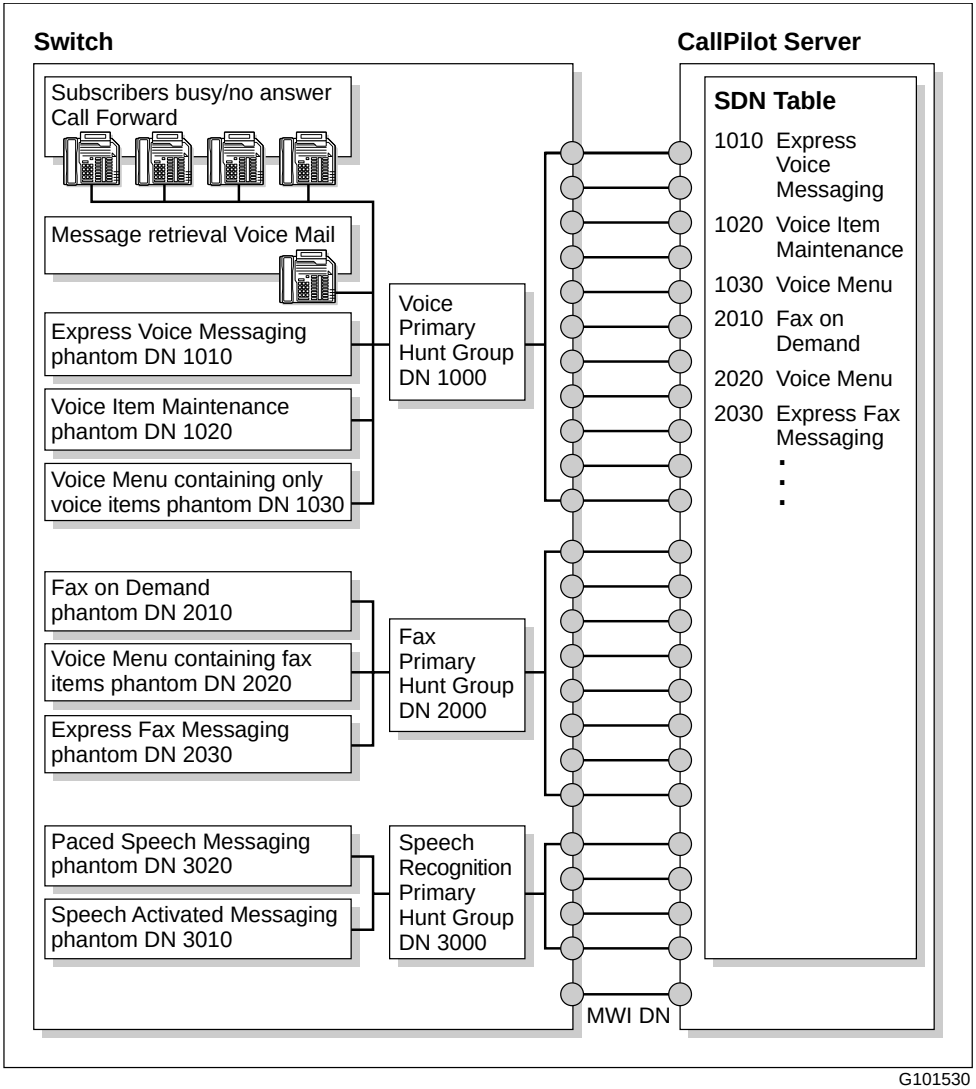
MWI DN

One analog line is dedicated to Q23 signaling to activate the Message Waiting Indicator. This specific extension has the same characteristics as the other analog lines but is not integrated into any hunt group. The Configuration Wizard enables you to define this MWI DN for CallPilot.

How calls are routed

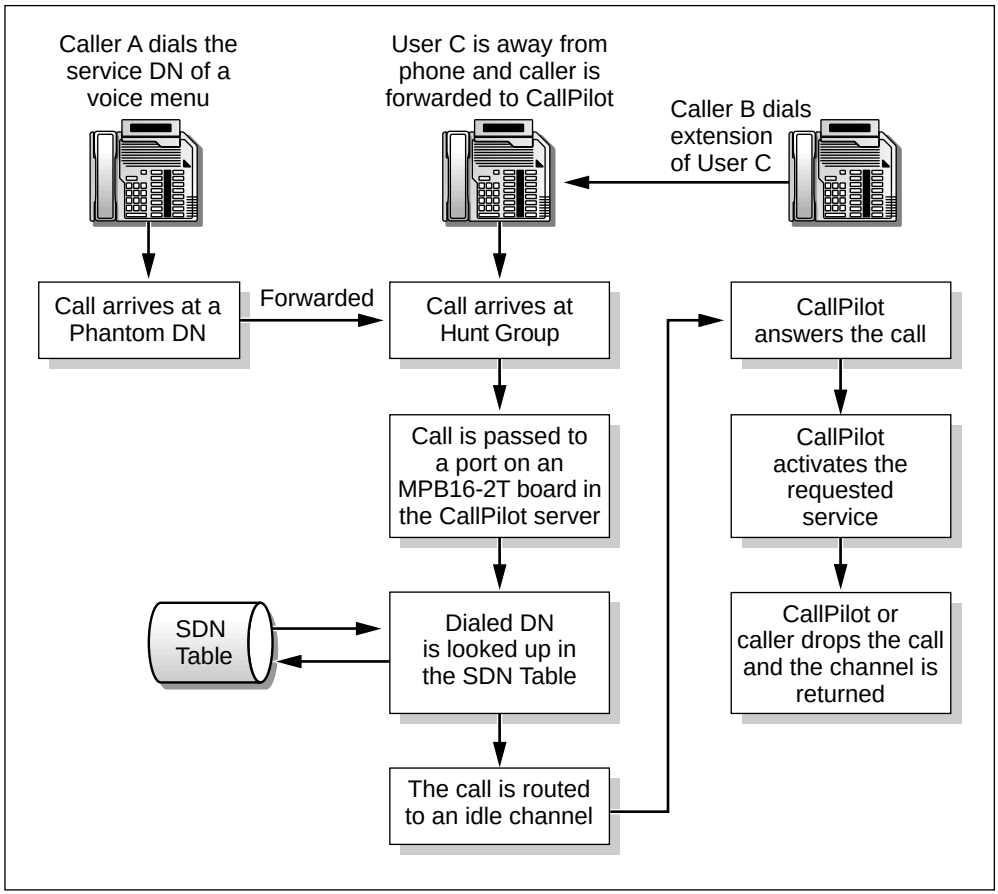
Introduction

When the switch receives an incoming call, the call is routed to the appropriate CallPilot service. The following diagram shows a sample call routing setup:



How calls are routed

The following flowchart shows how, based on the number dialed by the caller, a call gets routed to the appropriate CallPilot service:



1. The user dials the Express Fax Messaging DN (defined as phantom DN) to send a fax to a mailbox user.

2. The call is forwarded to Multimedia messaging, and rings the hunt group dedicated to Multimedia messaging. The user hears a ringback. CallPilot goes off hook (if a channel is free), and DTMF code B21 is sent by the switch, providing CallPilot with the called DN information. At this point,

CallPilot has to allocate the appropriate resources (# of MPUs) by looking up the called DN entry in the SDN table:

- 1 MPU for a voice-based service
- 2 MPU for a fax-based service
- 4 MPU for a Speech Recognition-based service

3. CallPilot searches the SDN table to verify if the called DN is defined or if the DN matches a DN mailbox number. CallPilot then tries to allocate a CallPilot service, application, or mailbox that gives the caller the appropriate multimedia message or treatment (in this example, Express Fax Messaging service).

   In this example, CallPilot assigns a fax DSP resource. It also determines that the Fax Express Messaging greeting must be played. The fax is deposited in the specified mailbox (users must have fax capability enabled in their mailboxes to receive faxes from this service). CallPilot sends DTMF code C1 to the switch to notify the mailbox's user that a new fax has been received.

Overview of switch and server configuration

Introduction

The later chapters provide detailed instructions for switch programming and server configuration. The following table summarizes the steps that relate to switch programming:

On the Matra switch	On the server
Create and configure one analog extension for each port on the MPB16-2T board. Assign these analog extensions to the ports on the switch that will be connected to CallPilot. Set these extensions to use Q23 signaling.	None
Designate one analog extension for processing Message Waiting Indicator signals (MWI).	Enter the DN for this port in the Configuration Wizard.
Declare three Q23 hunt groups (one for Voice Messaging, one for Multimedia Messaging, and one for Speech Activated Messaging). Assign and share the Q23 analog extensions among the three hunt groups.	Enter the hunt group DNs and their associated analog extension DN in the Configuration Wizard. Define in the SDN table the three hunt group DNs associated with Voice Messaging, Multimedia Messaging, and Speech Activated Messaging.
Create a phantom DN for each service that needs to be directly dialable. Forward this DN to the appropriate hunt group, depending on the media used.	Record all new phantom DNs as SDN entries in the Service Directory Number Table. Associate each phantom DN with a directly dialable service.

On the Matra switch	On the server
Program subscriber sets. Set up call forwarding to the appropriate hunt group DN: Voice, Fax, Speech Recognition, Q23 hunt group (as appropriate) in circumstances of Permanent/Busy/No Answer. If necessary, program a Message Waiting Indicator. For voice users, publish the primary hunt group DN (Voice Messaging), or program it as a key on the subscriber set, or both, to provide a quick access for retrieving messages. This programming is done via the phoneset interface or MMI.	None
Create a secondary DN for all users who require virtual fax access and call forward it to the Multimedia messaging hunt group DN. Only users with a digital set can use virtual fax features.	Ensure the fax capability is enabled for those mailboxes.

What's next?

Continue with Section D: "Matra switch," on page 85.

Chapter 2

Installing the switch line cards

In this chapter

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Installing the MGate card 77

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Switch hardware reference 82

Section C: Lucent, Mitel, or Rolm switch 83

Switch hardware reference 84

Section D: Matra switch 85

Switch hardware reference 86

Section A: Meridian 1 switch

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Installing the MGate card 77

About the MGate card

Introduction

ATTENTION

An MGate card is not used with IPE CallPilot servers (for example, the 200i or 201i servers).

The MGate card is installed in the PBX switch that provides call data to the CallPilot server. DS30X cables connected to the switch carry voice, fax, or speech recognition data to the server.

Supported hardware

MGate card	MPB16-4 board	DS30X cable
NTRHB18CA	NTRH20BA	■ Single cable (NTRH2012) ■ Double cable (NTRH2013)



CAUTION

Risk of data loss

The MGate card is shipped from the factory with the appropriate MPB16-4 board and DS30X cables.

Do not substitute other versions of these boards and cables in the configurations specified in this documentation, as this can result in data loss.

The number of channels supported

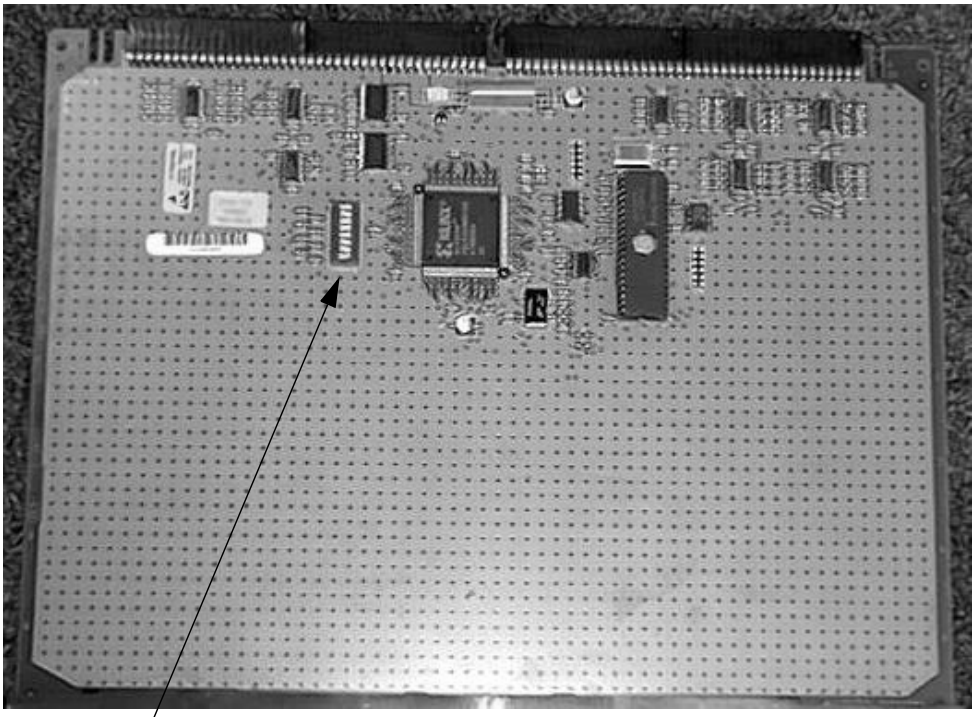
Each MGate card supports 32 channels. The number of channels supported is the same, regardless of the type of call data (fax or voice).

A second MGate card must be installed if more than 32 channels are required on the system. A third MGate card must be installed if more than 64 channels are required on the system.

Installing the MGate card

The MGate card

The following photograph of an MGate card shows the location of the DIP switches:



To install the MGate card

Note: You do not need to power down the switch for this procedure as the MGate card is hot-swappable.

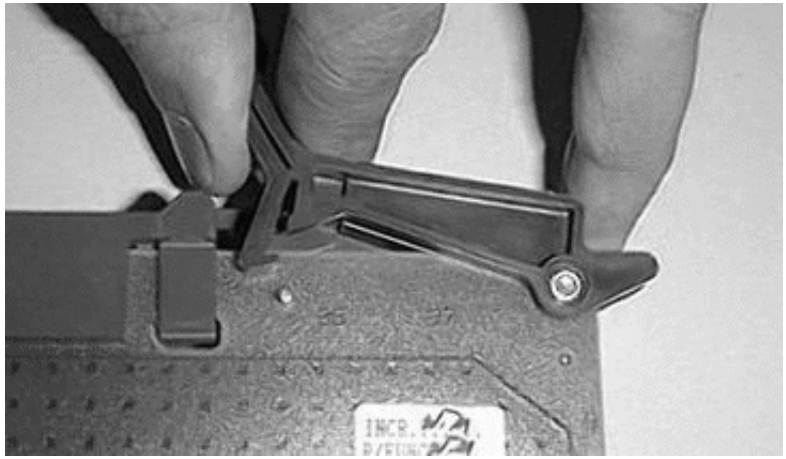
1 Remove the switch cover front panel to expose the shelf slots.

2 Remove the MGate card from its protective sleeve.

3 Set the DIP switches on the MGate card as shown in the following table. These DIP switch settings are used for all MGate cards and all system configurations.

	1	2	3	4	5	6	7	8
ON	X	X	X				X	
OFF				X	X	X		X

4 Press and pull the top and bottom latches on the MGate card outward to open the latches for installation of the card. A hook on the bottom of the latch has to clear a small pin in order to open.



5 Slide the MGate card into the assigned slot on the switch.

6 Ensure that the slot you choose is consistent with the switch programming (for example, the slot identified in the TN configurations).

Note: MGate cards can be placed in any slot on any shelf in Option 11C, Option 61C, and Option 81C switches that possess 24-tip and ring pair wiring connections to the I/O connector panel.

Slots that possess 16-tip and ring pair wiring connections require a cable kit extension to be used with MGate cards. (Sixteen-tip and ring pair wiring is present on older vintage 8D37 backplanes.)

It is *not* required that cards be placed adjacent to one another within a single shelf/cabinet. It is *not* required that all cards be placed within a single common shelf/cabinet.

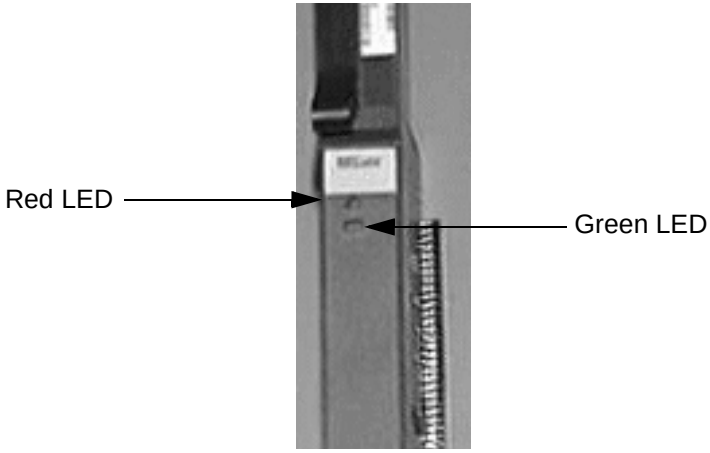
To determine whether a slot possesses 16- or 24-tip and ring pair wiring, refer to *Meridian 1, System Installation and Maintenance Guide* (P0868059).

7 Press the latches to close them, locking the card into position.

8 View the status of the LED indicators to ensure the card is software-enabled (Red LED is OFF), and the card is operational (Green LED is ON).

LED indicators

The MGate card has red and green LED indicators on the faceplate of the MGate card.



Combined LED states

The combined state of the red and green LEDs provides the important indicator.

Red LED	Green LED	Description
OFF	ON	Operational—MGate is enabled in the switch software, and the MGate card is operational.
OFF	OFF	MGate is not receiving power or the MGate card is faulty.
ON	ON	MGate is disabled in the switch software, but the MGate card is operational.

Red LED	Green LED	Description
ON	OFF	MGate is disabled in the switch software, and the MGate card is faulty.
Blinking	Blinking	MGate is executing self-test diagnostics.

What's next?

Continue with Section A: "Meridian 1 switch," on page 89.

To replace an MGate card

1. Courtesy down the DS0 channels from the CallPilot administrative PC to stop all call processing gracefully. Use the Channel Monitor or the Maintenance window, as described in Part 5 of this binder.

   Note: If your system has multiple MGate cards, you can choose to courtesy stop only the DS30 channels belonging to the MGate that is being replaced.

2. Remove the switch cover front panel to expose the shelf slots.
3. Open the latches to unlock the faulty MGate card.
4. Remove the faulty MGate card from the switch.

   Note: You do not need to power down the switch for this procedure as the MGate card is hot-swappable.

5. Press the replacement MGate into the same slot that the faulty MGate card occupied.

   Note: If you place the MGate card in a new slot, then you have to reprogram the switch to account for the new slot number, move the DS30X cable to the new slot, and reconfigure the software from the CallPilot administrative client PC.

6. Press the latches to close them, locking the card into position.
7. View the status of the LED indicators to ensure the card is software-enabled (Red LED is OFF), and the card is operational (Green LED is ON).
8. Reenable the DS0 channels that were disabled before the card was removed. Use the Channel Monitor or the Maintenance window, as described in Part 5 of this binder.

Section B: MSL-100/DMS-100 switch

In this section

Switch hardware reference 82

Switch hardware reference

Introduction

The MSL-100 switch can use Line Side T1 cards or an external channel bank for call lines.

The DMS-100 switch does not use Line Side T1 cards and requires an external channel bank for call lines.

ATTENTION

The Line Side T1 cards must be configured for ground start. Loop start is not supported by CallPilot.

See also

For more switch hardware information, including documentation references and supported channel banks, refer to "Switch hardware and software requirements" on page 128.

What's next?

Continue with Section B: "MSL-100/DMS-100 switch," on page 127.

Section C: Lucent, Mitel, or Rolm switch

In this section

Switch hardware reference 84

Switch hardware reference

Introduction

Refer to “Switch hardware and software requirements” on page 170 for details on switch hardware requirements.

Refer to the Lucent, Mitel, or Rolm documentation for instructions on installing line cards. The CallPilot installation documentation does not include detailed instructions for installing line cards in Lucent, Mitel, or Rolm switches.

What’s next?

Continue with Section C: “Lucent, Mitel, or Rolm switch,” on page 169.

Section D: Matra switch

In this section

Switch hardware reference 86

Switch hardware reference

Introduction

Refer to the Matra documentation for instructions on installing analog boards. The CallPilot installation documentation does not include detailed instructions for installing analog boards in Matra switches.

Only the following analog boards are supported for Matra CallPilot connectivity:

- LA4 and LM8 (4 analog channels) for M6501
- LA8 (8 analog channels) for M6501
- LAF (16 analog channels) for M6504, M6540, M6550
- LAE (32 analog channels) for M6504, M6540, M6550

What's next?

Continue with Section D: "Matra switch," on page 195.

Chapter 3

Switch programming

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Section A: Meridian 1 switch

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Switch hardware and software requirements

Supported Meridian 1 systems

The following Meridian 1 systems are supported:

- Option 11c
- 51c
- 61c
- 81
- 81c

Note: The copper-connected Option 11c does not support the ELAN, which is required for CallPilot.

Required X11 software

CallPilot requires software release X11R23.55 or later.

ATTENTION

This chapter describes the required responses for overlays in X11R23.55. Later X11 releases might have additional prompts, and the order of prompts might be different.

Required X11 packages

These are the required packages:

- 41 - ACDB (ACD Package B)
- 46 - MWC (Message Waiting Center)
- 214 - EAR (Enhanced ACD Routing)
- 215 - ECT (Enhanced Call Treatment)
- 218 - IVR (Hold in Queue for IVR)
- 247 - Call ID
- 324 - NGEN (CallPilot Connectivity)

- 364 - NMCE (CallPilot)
- 254 - PHTN (Phantom TN)

These are package 324 dependencies:

- 77 - CSL (Command Status Link)
- 153 - X25AP (Application Module Link - AML)
- 164 - LAPW (Limited Access to Overlays)
- 242 - MULI (Multi User Login)
- 243 - Alarm Filtering
- 296 - MAT (Meridian Administration Tool)

Required X11R23.55 patches

X11R23.55 requires a number of patches to support CallPilot. Large systems require MDCS05 plus several stand-alone patches. Small systems require several stand-alone patches.

For complete information about required software patches, refer to the section on “Switch Requirements” in the most recent issue of the General Release Bulletin, available at http://www.nortelnetworks.com/nic.

You require a password to access this site.

Line card

For tower and rack CallPilot servers, an MGate card must be installed in the Meridian 1 switch.

ATTENTION

An MGate card is not used with IPE CallPilot servers (for example, the 200i or 201i servers).

List of relevant overlays

Introduction

Use the guidelines outlined in this section when working with overlays.

Note: This section assumes that you are familiar with M1 switch technology and the application of overlays.

Relevant overlays

Use the following overlays to provision the switch for CallPilot:

Task	Overlay
Provision the ELAN	17
Configure the switch IP addresses and enable the Ethernet interface:	
■ Change the IP addresses for the Ethernet interface	117
■ Enable the Ethernet interface	137
■ Enable the ELAN connection	48
Provision a Customer Data Block	15
Configure an ACD agent queue	23
Provision the ACD agents	11
Define the default ACD DN	23
Configure CDN queues	23

Task	Overlay
Configure service DNs (phantom DNs or dummy ACD DNs)	
■ phantom loops	97
■ phantom DNs	10
■ dummy ACD DNs	23
Provision user phones	11 and 10
Provision the route data block for NMS	16

Note: You can also print configuration information from overlay 20 at any time.

Responding to overlay prompts

Overlays are programmed by responding to a series of prompts. The procedures in this section mention only those prompts that are relevant to CallPilot and that you must respond to in a certain way.

You can program any prompt that is not mentioned in any way. To accept the default value for other prompts, press Enter.

ATTENTION

Ensure that you update the switch database.

Working with overlays

When you work with overlays, follow these general steps:

1. Load the appropriate overlay.
2. Respond to the prompts as shown in the tables in this section. Press Enter after each prompt until you reach the next one you must define for CallPilot.
3. When you complete the configuration, enter **** in response to the REQ prompt.

The customer number

CallPilot can only be provided on a per customer basis on the Meridian 1 switch. AML messages used for communications between the switch and CallPilot contain a customer number to which CallPilot belongs. When you enter the customer number in the overlays, ensure that it is the correct customer number.

Provisioning the ELAN

Introduction

Define the ELAN for the AML link and its associated VSID in the configuration record. This provides the Ethernet connection over which AML messages are exchanged between the M1 and CallPilot.

To provision the ELAN

Load overlay 17. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	CHG	Change
TYPE	ADAN	Action device and number
ADAN	NEW ELAN xx	Configure a new link and assign it a number, where xx is within the ELAN range (16 to 31). You can use any number in this range as long as it is not already used.
CTYP	ELAN	Card type
DES	x...x	Enter a designator to identify this ELAN.
REQ	CHG	Change
TYPE	VAS	Value added server configuration
VAS	new	Configure a new AML link or change the existing link configuration.
VSID	yy	The VAS identifier can be in the range of 16 to 31. For convenience, this can be the same number defined above.
ELAN	xx	This should be the same number defined in ADAN.

Prompt	Response	Description
SECU	NO	You must disable security for VAS.
REQ	END	Exits the overlay.

Configuring switch IP addresses and enabling the Ethernet interface

Introduction

If the switch has not been defined with IP addresses, configure the IP addresses for the Ethernet interface. If the switch has been defined with the required primary and secondary IP address, then enable the ELAN link.

The procedure in this section addresses the following scenarios:

- For a single CPU M1 system (for example, Option 11c), there is only one Ethernet interface and a primary IP address.
- For a redundant or dual CPU M1 system (for example, Option 81C), you must define a primary and secondary IP address.
- If the switch is also connected to a CLAN, define a gateway IP address.

Note: To change an IP address after CallPilot is up and running, you must first stop and restart the system.

To configure the IP addresses and enable the Ethernet interface

The following data is used in examples in this procedure:

Data	Value (examples only)
Primary IP address	47.1.1.10
Primary Host Name	PRIMARY_IP
Secondary IP address	47.1.1.11
Secondary Host Name	SECONDARY_IP
Subnet mask	255.255.255.0
Default gateway IP address	47.1.1.1
Network IP address	0.0.0.0

1. Load overlay 117.
2. Perform the following substeps to check the default IP addresses to see if they already match what you have planned to configure for CallPilot.

   a. Type **PRT HOST** and press Enter.

   b. Type **STAT HOST** and press Enter.

   c. Type **PRT MASK** and press Enter.

   d. Type **PRT ELNK** and press Enter.

   If the default values must be updated, then continue with the remaining steps in this procedure. If you only need to enable the link or verify that the link is enabled, go to step 16.
3. Load overlay 137.
4. Type **STAT ELNK** and press Enter.
5. Type **DIS ELNK** and press Enter.
6. Type **STAT ELNK** and press Enter.
7. Load overlay 117.
8. Create a host entry for the primary IP address by entering the following command:

   NEW HOST *NAME xxx.xxx.xxx.xxx* (where NAME is the host name for the primary IP address, and xxx.xxx.xxx.xxx is the primary IP address)

   Example:

   NEW HOST PRIMARY_IP 47.1.1.10
9. If the switch has a dual CPU system, also create a host entry for the secondary IP address by entering the following command:

   NEW HOST *NAME xxx.xxx.xxx.xxx* (where NAME is the host name for the secondary IP address, and xxx.xxx.xxx.xxx is the secondary IP address)

   Example:

   NEW HOST SEC0NDARY_IP 47.1.1.11
10. If the switch is connected to a CLAN, also create a host entry for the gateway IP address by entering the following command:

NEW HOST *NAME xxx.xxx.xxx.xxx* (where NAME is the host name for the gateway IP address, and xxx.xxx.xxx.xxx is the gateway IP address)

Example:

NEW HOST GATEWAY 47.1.1.1

11 Assign a host to the primary IP address and secondary IP address (if applicable) by entering one or both of the following commands:

CHG ELNK ACTIVE *NAME xxx.xxx.xxx.xxx* (where NAME is the host name for the primary IP address, and xxx.xxx.xxx.xxx is the primary IP address)

CHG ELNK INACTIVE *NAME xxx.xxx.xxx.xxx* (this is applicable only if the switch has a dual CPU system; in this example, NAME is the host name for the secondary IP address, and xxx.xxx.xxx.xxx is the secondary IP address)

Example:

CHG ELNK ACTIVE PRIMARY_IP 47.1.1.10 (entry for primary host)

CHG ELNK INACTIVE SEC0NDARY_IP 47.1.1.11 (entry for secondary host, if the switch has a dual CPU system)

12 Set up the Ethernet subnet mask by entering the following command:

CHG MASK *xxx.xxx.xxx.xxx* (where xxx.xxx.xxx.xxx is the subnet mask)

Example:

CHG MASK 255.255.255.0

13 If using a gateway, set up the routing entry by entering the following command:

NEW ROUTE *xxx.xxx.xxx.xxx yyy.yyy.yyy.yyy* (where xxx.xxx.xxx.xxx is the network IP address and yyy.yyy.yyy.yyy is the gateway IP address; put one space between the network IP address and the gateway IP address)

Example:

NEW ROUTE 0.0.0.0 47.1.1.1

14 Update the INET database by entering the following command:

UPDATE DBS

15 Exit the overlay by entering the following command:

END

16 Load overlay 137.

17 Type **STAT ELNK** and press Enter.

18 Type **ENL ELNK** and press Enter.

19 Type **STAT ELNK** and press Enter.

20 Load overlay 48.

21 Type **STAT ELAN** and press Enter.

22 Type **ENL ELAN** and press Enter.

23 Type **STAT ELAN** and press Enter.

24 Load overlay 117.

25 Verify the changes as follows:

a. Type **PRT HOST** and press Enter.

b. Type **STAT HOST** and press Enter.

c. Type **PRT MASK** and press Enter.

Defining CallPilot in the customer data block

Introduction

You must define the CallPilot service in the customer data block, with the Call Park Allowed (CPA) and Message Center Included (MCI) options enabled.

During this configuration, you also define how unanswered and busy calls are routed:

- Flexible Call Forward (FNAD/FNAN/FNAL) is set on a per customer basis. The call forward DN is defined in the user's phoneset data.
- Call Forward No Answer/Busy (MDID/NDID/MWFB) is set on a per customer basis. All no answer and busy calls are routed to the flexible call forward DN, provided that the called phoneset has Message Waiting Allowed (MWA) class of service enabled.

Normally, non-Direct Inward Dialing (DID) calls are routed to CallPilot when a no answer or busy condition is encountered. As an option, you can route DID calls to the attendant's or user's Hunt DN.

To modify the customer data block

Load overlay 15. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	CHG	Change
TYPE	FTR	Attendant Consoles
CUST	xx	Customer number (0–99)
ATDN	(0) yyyy	Attendant DN
OPT	CPA MCI	Call Park Allowed and Message Center Included are enabled for the customer.

Prompt	Response	Description
IDEF	YES or NO	Internal/External Definition. Set to YES if Call Forward by Type feature (CFCT) is installed on the switch.
MATT	NO (YES)	Set to YES if Network Message Service (NMS) has not been purchased. If NMS has been purchased, set the primary switch to YES and all secondary switches to NO.

Load overlay 15 again. For each prompt listed below, enter the response indicated:

REQ	CHG	Change
TYPE	RDR	Call Redirection
CUST	xx	Customer number (0–99)
FNAD	FDN	Call forward no answer DID calls are routed to flexible CFNA DN.
FNAN	FDN	Call forward no answer non-DID calls are routed to flexible CFNA DN.
FNAL	FDN	Call forward no answer local calls (with CFCT enabled) are routed to flexible CFNA DN.
CFNA	4	The number of ring cycles before the call is forwarded

Load overlay 15 again. For each prompt listed below, enter the response indicated:

REQ	CHG	Change
TYPE	FTR	Customer features and options
CUST	xx	Customer number (0–99)

Prompt	Response	Description
EEST	(NO) YES	The originating party does not receive DTMF feedback. Set remote Meridian 1 sites to NO.
Load overlay 15 again. For each prompt listed below, enter the response indicated:		
REQ	CHG	Change
TYPE	NET	Networking
CUST	xx	Customer number (0–99)
ISDN	(NO) YES	Set to YES only if NMS has been purchased. Otherwise, set to NO.
PNI		NMS only. The Private Network Identifier. Within one network, use the same PNI value in overlays 15 and 16. When you interwork with different networks, enter the PNI of this Meridian 1 in overlay 15, and the PNI of the remote switch in overlay 16.
HLOC		NMS only. Home Location Code (ESN) of the Meridian 1. This can be in the range 100–999.
LSC		NMS only. Local Steering Code (established in the Coordinated Dialing Plan, or CDP) of the Meridian 1. This prompt only appears for 5- or 6-digit dialing plans.
	<Enter>	Press Enter until you reach the end of the overlay (REQ prompt).
REQ	****	Exits the overlay.

Additional steps if Call Forward by Type feature is installed (CFCT)

Load overlay 16. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW or CHG	
TYPE	RDB	Route data block
CUST	xx	Customer number (0–99)
ROUTE		Route number
RCLS	EXT	
IDEF	LOC	
	<Enter>	Press Enter until you reach the end of the overlay (REQ prompt).
REQ	****	Exits the overlay.

Configuring the ACD agent queue

Introduction

You must set up only one ACD agent queue to service CallPilot. This queue holds all the agents that correspond to DS0 channels on the CallPilot server.

Note: The ACD DN is not normally used as a Service DN. However, in applications where calls are to be overflowed into CallPilot, you must define the ACD DN as a Service DN.

To configure the agent queue

Load overlay 23. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	Add new data.
TYPE	ACD	Indicates this is an ACD queue.
CUST	xx	Customer Number (0–99)
ACDN	yyyy	This is the ACD DN for CallPilot.
MWC	NO	Message Waiting Center. Set to NO.
MAXP	zzzz	Maximum number of agents. MAXP must be equal to or greater than the total number of multimedia channels installed on your system.
IVR	YES	Interactive Voice Response queue
ALOG	YES	Provide automatic logon for ACD agents.
	<Enter>	Press Enter until you reach the REQ prompt.
REQ	****	Exits the overlay.

Configuring ACD agents

Introduction

For CallPilot, you must define channels as ACD agents on M2008 digital sets. All agents are added to the ACD queue that you have configured.

Each agent must have the VCE, WTA, UNR, and MMA class of service. To get the VCE class of service on the upper 16 units (15–31), you must first specify the FLXA class of service. Each agent must be provisioned with the following feature keys: ACD, SCN, NRD, MSB, TRN, and AO3.

Note: You can define a more restrictive class of service for the agents (for example, Conditionally Toll Denied [CTD]). Call restrictions in effect for the class of service take precedence over the dialing restriction/permission provided by CallPilot.

Terminal numbers

A Terminal Number (TN) is required for each agent.

Integrated server (for example, 200i or 201i server)

On the integrated version of the CallPilot server, ACD agents use TNs associated with the slot location of the IPE card.

Tower or rack servers (for example, the 702t and 1001rp servers)

On the tower and rack versions of the CallPilot server, ACD agents use TNs associated with the slot location of the MGate card.

Position IDs

You also need a Position ID for each agent. The server uses the position ID to inform the switch to which agent an incoming call should be routed.

For ease of maintenance, assign sequential numbers to the IDs that are not already in use.

To configure agents

Load overlay 11. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	
TYPE	2008	ARIES digital set with 8 programmable keys.
TN	l s c u	Terminal Number of the MGate card (tower and rack server), or the 200i or 201i unit, where **l** is the loop, **s** is the shelf, **c** is the card, and **u** is the unit. (For the Option 11C, TN is **cu** only.)
CUST	xx	Customer number (0–99)
CLS	VCE WTA UNR MMA (units 0-15) FLXA VCE WTA UNR MMA (units 16-31)	Voice terminal, Warning tone allowed, Unrestricted, Multimedia Agent, Flexible voice/ data allowed.
key	0 acd xxxx 0 yyyy	where xxxx is the ACD DN of the CallPilot agent queue and yyyy is the Position ID of the agent.
key	1 scn zzzz	where zzzz is the single-call non-ringing DN used to make outbound calls.
key	2 msb	Make Set Busy
key	3 nrd	Not Ready
key	4 trn	Transfer
key	5 ao3	Three-Party Conference
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).

Prompt	Response	Description
REQ		If you are finished adding agents, enter **** to exit the overlay. To add another agent, return to the top of the table.

Defining the default ACD DN

Introduction

Before you configure the CDN queue, define the default ACD DN that needs to be referenced in the CDN. During normal operation, the CDN is in control mode, and callers are queued to be routed and then answered by CallPilot services. Under error conditions (for example, if the AML link is down), the CDN operates in default mode and calls are routed to the default ACD DN defined for the CDN. Such calls are best handled by the attendant.

For the attendant to process incoming calls to CallPilot when the CDN is in default mode, define a dummy ACD DN and set it to night call forward to the attendant.

To create a default ACD DN

Load overlay 23. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	
TYPE	ACD	
CUST	0	Customer number (0–99)
ACDN	xxxx	The ACD DN. Enter this DN as the DFDN in the CDN configuration.
MWC	NO	Message Waiting Center. Set to NO.
MAXP	1	This indicates that there are no agents in this queue and it is, therefore, a dummy queue.
NCFW	0	Night call forward to the attendant.
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).

Prompt	Response	Description
REQ	****	Exits the overlay.

Configuring CDN queues for messaging services

Introduction

Configure two CDN queues for the following services:

- Configure a primary CDN for Voice Messaging. This becomes the main CDN queue.
- Configure a secondary CDN for Multimedia Messaging, if you want to provide users with fax capability.

Note: Nortel Networks strongly recommends that you use either a phantom DN or a dummy ACD DN for all other messaging services.

To configure a CDN queue

Load overlay 23. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	
TYPE	CDN	Control DN queue
CUST	xx	Customer number (0–99)
CDN	yyyy	The Control DN of the queue. This number must be entered as the SDN for the messaging service in the SDN Table.

Prompt	Response	Description
DFDN	zzzz	The default ACD DN (see page 109). Calls to the CDN are directed to this ACD DN if the link or CallPilot goes down. Nortel Networks recommends that this is not defined as the ACD DN of the CallPilot ACD queue.
VSID	<Enter>	Press Enter so that the ID is dynamically assigned to the CDN when the ELAN link is established.
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).
REQ		To configure another CDN, return to the top of the table. To exit, enter ****.

Configuring phantom DNs

Introduction

There are two reasons for configuring phantom DNs on the switch:

- to create dialable numbers for CallPilot services
- to create virtual fax DNs for users who want a separate fax number

ATTENTION

Another option is to configure dummy ACD DNs instead of phantom DNs. See "Configuring dummy ACD DNs" on page 117.

Supporting multiple languages

For Fax Item Maintenance, Voice Item Maintenance, Speech Activated Messaging, and Paced Speech Messaging, multiple language support might have been purchased.

This means that, for example, you can create an English and a Spanish version of Voice Item Maintenance if you have these languages installed. To support this, you need to create a phantom DN for each supported language. Therefore, in this case, you need two phantom DNs (one for English Voice Item Maintenance and one for Spanish Voice Item Maintenance). This also means that callers must dial a different number to access the service, based on the language they prefer.

Virtual fax DNs for users with fax capabilities

Users that have fax capabilities can have one DN that serves as both their regular extension number and their fax number. In this case, you set up a phone for the user as described in "Provisioning user phonesets" on page 119. The user's phone must be forwarded to the Multimedia Messaging CDN.

However, some users might need or want two separate DNs—one DN that serves as their regular telephone number, and a second DN that serves as their fax number. For these users, you cannot simply define the virtual fax DN as another DN on the user's phoneset. Instead, you must set up a TN as the virtual fax DN. Since physical TNs are more costly, Nortel Networks recommends that you configure phantom DNs instead.

A separate TN is necessary because a single TN (the telephone) can only be call forwarded to one DN (regardless of how many DNs appear on that phone). For these users, you must ensure that their "telephone number" (the mailbox DN) forwards to the Voice Messaging CDN, whereas their "fax number" (the virtual fax DN) forwards to the Multimedia Messaging CDN.

In CallPilot, when you add the user, you must define this virtual fax DN as one of the user's extension DNs.

To check for existing phantom loops

A phantom loop must exist before you begin to configure phantom DNs. Use overlay 22 to print the configuration record to see if any phantom loops are already configured. A phantom loop is shown with the prefix "P" illustrated in the following sample:

Note: You can use superloops as phantom loops.

```
.
.
CEQU
  MPED 8D
  SUPL 000 004 008 012
       016  032  036  040
        048  P064  P068    (phantom loops 64 and 68)
DDCS
.
.
```

To configure a phantom superloop

If no phantom loops are configured, load overlay 97. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	CHG	
TYPE	SUPL	Superloop
SUPL	Nxxx	Prefix the loop number with N to create a phantom loop. The loop number range is 0–156 on Option 51C/61C/81C. On the Option 11C on X11 Release 23.55, the phantom loop number range is 64–80 in multiples of 4 (corresponds to slots 41–60). On the Option 11C on X11 Release 24 or higher, the range is 96–112 in multiples of 4 (corresponds to slots 61–80).
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).
REQ	****	Exits the overlay.

To configure a phantom DN

Load overlay 10. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	
TYPE	500	PBX set type

Prompt	Response	Description
TN	l s c u	Terminal Number, where **l** is the loop, **s** is the shelf, **c** is the card, and **u** is the unit. (For the Option 11C, TN is **cu** only.) PHANTOM is echoed by the switch when the specified loop is phantom.
CDEN	xx	The card density supported by the loop, where xx can be SS - single density DD - double density 4D - quadruple density
DN	yyyy	The DN must be single appearance.
CLS	UNR	Unrestricted. Phantom DNs cannot originate calls, so this option is secure.
FTR	DCFW nn xxxx	DCFW = Default Call Forward nn = maximum number of digits in the DCFW DN xxxx = the CDN to which this DN forwards If this phantom DN is for a voice service, enter the Voice Messaging CDN. If this phantom DN is for a fax service, enter the Multimedia Messaging CDN. If this phantom DN is a virtual fax DN for a user, enter the Multimedia Messaging CDN.
	<Enter>	Press Enter until you reach the end of the overlay (REQ prompt).
REQ		If you are finished adding phantom DNs, enter **** to exit. To add another DN, return to the top of the table.

Configuring dummy ACD DNs

Introduction

As an alternative to creating phantom DNs for directly dialable services, you can create a dummy ACD DN that is set up to call forward to the appropriate CDN depending on the multimedia channel type required.

For example:

- For a service that requires only voice capability, forward the dummy ACD DN to the Voice Messaging CDN.
- For a service that requires fax capability, forward the dummy ACD DN to the Multimedia Messaging CDN.

To configure dummy ACD DNs

Load overlay 23. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	
TYPE	ACD	
CUST	xx	Customer number (0–99)
ACDN	xxxx	Enter the DN for the service.
MWC	YES or NO	Message Waiting Center. If the CallPilot server is a Network Message Service (NMS) satellite site, set to YES. Otherwise, set to NO.
MAXP	1	This indicates that there are no agents in this queue and it is, therefore, a dummy queue.

Prompt	Response	Description
NCFW	yyyy	Specify the appropriate CDN depending on multimedia channel type required (Voice Messaging CDN or Multimedia Messaging CDN)
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).
REQ	****	Exits the overlay.

Provisioning user phonesets

Introduction

Mailbox users' phonesets must be set up in a certain way to support CallPilot. The procedure depends on whether you are provisioning a digital or a 500 phoneset.

Required features

Phonesets must be set up to support the following features:

- Call forward no answer to the appropriate CDN (voice or multimedia)

  Note: You cannot forward users' phones to the Speech Activated Messaging CDN since this service does not provide call answering functionality.
- Call forward busy to the appropriate CDN
- Call forward all calls to the appropriate CDN
- Message Waiting key with the appropriate CDN as the Message Center DN

Note: If you do not plan to give fax capability to the user's mailbox, use the Voice Messaging CDN. If you plan to give fax capability to the user's mailbox, then use the Multimedia Messaging CDN.

To provision digital phonesets

Load overlay 11. For each prompt listed below, enter the response indicated in overlay 11. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW or CHG	
TYPE	2317, 2008, 2616, etc.	Type of set

Prompt	Response	Description
TN	l s c u	Terminal Number of the phone, where **l** is the loop, **s** is the shelf, **c** is the card, and **u** is the unit. (For the Option 11C, TN is **cu** only.)
CUST	xx	Customer number (0–99)
FDN	yyyy	Flexible call forward no answer DN. Set this to the CDN of the Voice Messaging or Multimedia Messaging CDN queue.
HUNT	zzzz	Hunt (internal). Set this to the CDN of the Voice Messaging or Multimedia Messaging CDN queue.
CLS	FNA, FBA, HTA, MWA	Call forward no answer allowed. Call forward busy allowed. Hunt allowed. Message waiting allowed.
KEY	0 SCR xxxx	Single call ringing DN, where xxxx is the user's DN.
CPND	New	Calling Party Name Display (if adding a new set).
NAME	First,Last	The name of the phoneset user.
KEY	3 MSB	Make set busy
KEY	4 TRN	Transfer
KEY	5 AO3	Three-party conference. Required by the Call Sender feature.
KEY	6 CFW nn xxxx	Call forward all calls, where nn = maximum number of digits in the Call Forward DN and xxxx is the Voice Messaging or Multimedia Messaging CDN.
KEY	8 MWK yyyy	Add a message waiting key/lamp, where yyyy is the Voice Messaging or Multimedia Messaging CDN.
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).

Prompt	Response	Description
REQ		If you are finished adding phonesets, enter **** to exit. To add another phoneset, return to the top of the table.

To provision 500/2500 phonesets

Load overlay 10. For each prompt listed below, enter the response indicated in overlay 10. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW	
TYPE	500	500 phoneset
TN	l s c u	Terminal Number of the phone, where **l** is the loop, **s** is the shelf, **c** is the card, and **u** is the unit. (For the Option 11C, TN is **cu** only.)
CUST	xx	Customer number (0–99)
DN	yyyy	Directory Number
HUNT	zzzz	Hunt (internal). Set this to the CDN of the Voice Messaging or Multimedia Messaging CDN queue.
CLS	HTA, MWA, FNA, FBA, XFA, LPA, DTN	Hunt allowed. Message waiting allowed. Call forward no answer allowed. Call forward busy allowed. MWI lamp is equipped (if not equipped, users are notified of new messages by interrupted dial tone).
FTR	FDN xxxx	Flexible call forward no answer. Set this to the Voice Messaging or Multimedia Messaging CDN.

Prompt	Response	Description
FTR	CFW yy	Call forward all calls, where yy is the maximum DN length that users can specify as the call forward DN.
	<Enter>	Press Enter to the end of the overlay (the REQ prompt).
REQ		If you are finished adding phonesets, enter **** to exit. To add another phoneset, return to the top of the table.

Configuring the route data block for Network Message Service

Introduction

If you have purchased Network Message Service (NMS) to allow a number of switches to share CallPilot (installed on only one switch), then configure the route data block.

Note: Make sure that Digit Manipulation (DMI in overlay 86) is not used to insert ESN access codes at the sending switch. ESN access code insertion must be done at the receiving switch (INAC in overlay 16).

To modify the route data block

Load overlay 16. For each prompt listed below, enter the response indicated. For those prompts that are not listed, you can accept the default by pressing Enter.

Prompt	Response	Description
REQ	NEW or CHG	
TYPE	RDB	Route data block
CUST	xx	Customer number (0–99)
ROUTE		Route number
PNI		Customer Private Network ID of the non-local target Meridian 1.
NCRD	Yes	Network call redirection provides the CLID display information.
TRO	Yes	Optimize trunk usage on this route.
INAC	Yes	Insert an ESN access code to incoming private network calls.

Prompt	Response	Description
	<Enter>	Press Enter until you reach the end of the overlay (REQ prompt).
REQ	****	Exits the overlay.

Configuring switches for Network Message Service

Introduction

Switches provide the call handling required by CallPilot.

All switches that are used by NMS are already configured and tested when you begin to implement NMS.

However, you must check this configuration to determine if it is suitable for NMS. You must also do additional configuration to enable functionality that is required by NMS.

For more information on how to configure switches for NMS, refer to the "Configuring the switches" chapter in the *CallPilot NMS Implementation and Administration Guide.*

Saving Meridian 1 changes

Introduction

Once you modify the switch configuration to support CallPilot, save all changes to disk.

To save your configuration

1. Load overlay 43.
2. At the next "." prompt, type **EDD** to dump the data to disk.

   Result: The system displays the data being saved. The following message appears:

   ```
   RECORD COUNT=xxxx
   DATADUMP COMPLETE
   ```

3. Return to step 2, and repeat this step two more times. Use a new disk each time.

ATTENTION

Do not remove the disk while the LED is lit. As long as the LED is on, the disk is still being written to.

What's next?

Continue with Section A: "Meridian 1 switch," on page 221.

Section B: MSL-100/DMS-100 switch

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Switch hardware and software requirements

Introduction

This section describes the switch hardware and switch software version required by CallPilot. If this hardware is not already present, then refer to the MSL-100/ DMS-100 switch documentation for installation instructions.

Line Side T1 cards (MSL-100 only)

If using line cards, you must have a sufficient number of Line Side T1 cards for the number of channels purchased. Refer to *Line Side T-1 Interface (LT1) for IPE Services Guide* (NTP 555-4001-022) for instructions on installing Line Side T1 cards.

ATTENTION

The Line Side T1 cards must be configured for ground start. Loop start is not supported by CallPilot.

Channel banks (for DMS-100, or for MSL-100 not using Line Side T1 cards)

The Newbridge MainStreet 3624 channel bank is currently supported. For channel bank installation, refer to the documentation that comes with the channel bank.



CAUTION

Risk of problems with Remote Notification feature

To avoid problems with outbound calls when using a channel bank, the total gain of the voice path (CallPilot, channel bank, and the switch) should be as close to 0dB as possible. A variation of 3dB is acceptable. The Rx gain and Tx gain should each be adjusted to approach 0dB (to minimize the signal attenuation received and generated by CallPilot).

I/O port

The switch must have either an IOC shelf with an NT1X89 card or an IOM (NTFX30AA) to support the SMDI link to CallPilot.

Switch software version required for CallPilot

The MSL-100 switch requires MSL10 or higher. The DMS-100 switch requires NA08 or higher.

Overview of switch programming

Introduction

You must be familiar with PBX or Centrex switch terminology, programming, and installation to perform the configuration procedures. The procedures described are for MSL-100/DMS-100 installations.

Note: All input is done at the maintenance administration position terminal (MAP).

Carry out the following procedures in the sequence indicated. Where input values are in uppercase text, enter the values indicated. Where input values are in lowercase text, substitute the values specified in your DMS Data Form.

Documentation references for switch datafilling

MSL-100 switch

- *Commercial Systems Service Order Reference Manual* (NTP 555-4031-808)
- *Simplified Message Desk Interface Description and Implementation* (NTP 297-2001-104)
- *Commercial Systems Office Parameters Reference Manual* (NTP 555-4031-855)
- *Customer Data Schema Reference Manual* (NTP 555-4031-851)

DMS-100 switch

- *Simplified Message Desk Interface Setup and Operation* (NTP 297-2051-104)
- *Customer Data Schema Reference Manual* (NTP 297-8001-351)

Datafill and servord programming sequence

The following tables are listed in the order in which they are datafilled:

Table/Step	Action
OFCENG	Check the amount of memory available.
MPC	Assigns the MPC card.
MPCLINK	Installs the MPC link.
SLLNKDEV	Defines the datalink characteristics.
OFRT	Defines the office route to the CallPilot Voice Messaging/Call Answering DN.
DIGCOL	Defines the basic digit collection plan for the customer group and any alternate digit collection plans.
UCDGRP	Defines the UCD group or groups.
DNROUTE	Assigns the primary directory number to a UCD group.
LNINV	Defines the line location.
Use servord to add agents.	Add agents to the UCD groups.
Use servord to create line DNs.	Create line DNs for directly dialable services. These line DNs are forwarded to the appropriate UCD group for the service media type.
Use servord to move agents if necessary.	Move agents from UCD group to another if traffic analysis indicates this is necessary. Make corresponding changes on the CallPilot system.
IBNXLA	Enters the feature activation codes.

Login and Logout code restrictions

The UCD Agent Login (UCDA) and Logout (UCDD) codes are limited to a digit string from 0 to 9 only. The characters * and # are not supported.

You must expand the current translation datafill to support feature access from a rotary phone. Each customer group within the MSL100/DMS100 must identify a unique digit sequence (for example, 11), and modify the pre-translation/ translation datafill such that the unique digit sequence points to the same translators as the * (or #) key. With this configuration, dialing 11xx translates into the same feature access as *xx. This approach is very similar to the use of 11 in the residential market to support feature access from rotary phones.

Checking the amount of memory available

Table OFCENG and the DYNAMIC_MEMORY_SIZE parameter

Refer to *Commercial Systems Office Parameters Reference Manual* (NTP 555-4031-855) for details on using the DYNAMIC_MEMORY_SIZE parameter to provision the amount of memory available. This parameter is part of table OFCENG.

Assigning terminal devices for the NT1X89 card or IOM (NTFX30AA)

Introduction

Datafill tables MPC and MPCLINK.

To datafill table MPC

1. Type **table mpc** and press Enter.
2. Type **add** and press Enter.
3. Enter values as shown in the following table:

Field	Subfield	Entry	Explanation and action
MPCNO		0–255	Enter the MPC number used for SMDI.
MPCIOC		0–12	MPC input/output controller shelf. Enter the number associated with the (MPC) SMDI card.
IOCCCT		0, 4. 8, 12, 16, 20, 24, 28, 32	IOC circuit number for the MPC (SMDI) card. Enter the slot position on the IOC shelf multiplied by 4, from 0–32.
EQ		1X89zz or FX30zz	Enter the NT product engineering code for the MPC card, where zz are the two letters at the end of the product code.
DLDFILE		MPCAxxyy	Enter the name of the 8-character download file for SMDI and MPCA.

To datafill table MPCLINK

1. Type **table mpclink** and press Enter.
2. Type **add** and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
LINKKEY		See the explanation.	This key field is composed of subfields MPCNO and LINKNO.
	MPCNO	0–255	Enter the MPC number used for SMDI (the same number entered in table MPC).
	LINKNO	2, 3	Enter the MPC link number for SMDI application with ASYNC protocol.
LINKALM		Y or N	Enter Y to activate the MPCLINK alarm for system busy (SYSB) MPC links. Enter N if you do not want to activate the MPCLINK alarm for system busy (SYSB) MPC links. **Note:** If you enter N, the system does not generate MPC908 (MPC link state transition) logs.
PROTOCOL		ASYNC	Enter the Link protocol. ASYNC is the proper entry for CallPilot.
LINKNABL		0–32 765	For a link that is not fully active, this is the time-out in minutes before the system goes to system busy (SBSY) and then returns to service. Enter the number of minutes for this time-out (must be a multiple of 5).
PARM		APLDEFN	Enter APLDEFN to specify the application definition.
ADEFN		SMDI	Application definition.
PARM		BAUDRATE	Enter BAUDRATE to specify the baud rate.
RATE		B9600	Baud rate. Must be B9600.
PARM		PARITY	Enter PARITY to specify the parity.
PRTY		EVEN	Parity. Must be EVEN.

PARM		See the explanation	The following are among the optional parameters: L1IDLY, L2IDLY, LNKDOWN. If you enter a parameter, you are then prompted to enter a value for it. L1IDLY and L2IDLY timers can be used in offices with heavy SMDI/VMS traffic to shorten the amount of time the MPC can delay sending an MWI to the switch. (The default is 3 seconds.) The LNKDOWN timer adjusts the length of time the switch takes to recognize LINK failure and sets the LINK to SYSB. (The default is 2 seconds.)

Defining datalink characteristics

Introduction

Use the table SLLNKDEV to specify characteristics of datalinks used by the command interpreter LNKUTIL.

Note: Based on your switch software load, some fields might differ.

To datafill table SLLNKDEV

1 Type **table sllnkdev** and press Enter.

2 Type **add** and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
DEVNAME		up to 16 characters	Enter a unique device name.
DEVICE		1X89	Device type used. Enter 1X89 if using an IOC shelf or an IOM.
MPCNO		0–255	The MPC number. Use the same value specified in table MPC.
LINKNO		2, 3	The MPC link number. Use the same value specified in table MPCLINK.
XLATION		NONE	No translation is used for outgoing and incoming datalinks.
PROTOCOL		NONE	No protocol is used by the datalink and the PBX/DMS for connecting and starting messages.
DIRECTION		INOUTLK	Direction that the data travels through the datalink.

XFER		SMDIDATA	The report type currently allowed on the datalink. SMDIDATA is for SMDI I/O communication.
OPTION		NUMOFDIGS	
NUMDIGS		10	The number of digits sent by the switch to CallPilot through the SMDI link.
OPTION		CGNADDRDN	
OPTION		$	

Datafilling table OFRT

Introduction

Table OFRT associates the customer route number of the SMDI link with its UCD DN.

Use table OFRT to set up a treatment for unanswered calls (calls that are unanswered because of overflow or because they have exceeded the maximum wait time in the queue). The route is later used in table UCDGRP. Either this table or table IBNRTE is used with table UCDGRP, based on how the customer wants unanswered calls to be routed. It might be more helpful to route the call to a treatment. The following example shows unanswered calls routing back to voice mail.

Only those fields in table OFRT that apply to the switch are described here. Refer to the *Customer Data Schema Reference Manual* (for MSL-100, NTP 555-4031-851; for DMS-100, NTP 297-8001-351) for a description of the other fields.

To datafill table OFRT

The following table describes the relevant fields in table OFRT:

Field	Subfield	Entry	Explanation and action
RTE		1–1023, or blank	Route reference index. If the record is the first in the route list, enter the route reference number assigned to the route list. Otherwise, leave blank.
RTESEL			The route selector.
SNPA			Serving NPA (area code) of the DN.
TYPCALL		DD, NP, or OA	Type of call.

Field	Subfield	Entry	Explanation and action
ORIGSCRE		LCL or NLCL	LCL (Local) or NLCL (non-local).
REPLDIGS		up to 11 digits	Replace digits.
CANCNORC		Y/N	Cancel normal change.
BILLCODE		numeric or N	Billing code. If no billing number exists, enter N.

Datafilling table DIGCOL

Introduction

Only those fields in table DIGCOL that apply to the switch are described here. Refer to the *Customer Data Schema Reference Manual* (for MSL-100, NTP 555-4031-851; for DMS-100, NTP 297-8001-351) for a description of the other fields.

Table DIGCOL contains data that indicates the action that the line module must take in accordance with the first digit dialed. Digit collection tables are assigned to the access codes for direct outward dial calls, electronic switching network (ESN) calls, outward wide-area telephone service calls, private network calls, and route and tandem tie trunk route calls.

To datafill table DIGCOL

The following table describes the relevant fields in table DIGCOL:

Field	Subfield	Entry	Explanation and action
DGKEY			Digit Collection Key. This field consists of subfields DATNAME and DIGIT.
	DATNAME	1–8 alphanumeric characters	Name of Digit Collection Table. Enter the character assigned to the block of data in table DIGCOL.
	DIGIT	0–9, STAR, or OCT	Digit. Enter a numeric value from 0–9, STAR (star), or OCT (octothorpe) to specify the digit that is applicable to the record.
DGDATA			Digit Collection Data. This field consists of subfield DGCOLSEL and field COLDATA.

Field	Subfield	Entry	Explanation and action
	DGCOLSEL	COL	Digit Collection Selector. This subfield specifies the selector for regular digit translation. Enter COL for the collection of more digits.
COLDATA			Collect Data. This field consists of subfields TMODE and NUMDIGS.
	TMODE	S	Timing Mode. Enter S for short timing mode or L for long timing mode. S is required for CallPilot.
	NUMDIGS	1–7	Number of Digits. If TMODE is S, specify the number of digits for which short timing is required after the receipt of each digit. The number of digits specified, which does not include the initial digit, must be no greater than three for short timing.

Defining the UCD group

Introduction

Create a UCD group for each media type purchased for CallPilot. The possible media types are

- Voice Messaging, if this feature has been purchased
- Multimedia Messaging, if fax channels have been purchased
- Speech Recognition, if this feature has been purchased

ATTENTION

Each UCD group must have a unique primary DN.

Dedicating channels to specific services

If you are dedicating channels to specific services, you must create an additional UCD group for each service that you plan to have dedicated channels. Nortel Networks recommends that you do not dedicate channels because it reduces the overall efficiency of CallPilot.

To datafill table UCDGRP

1. Type **table ucdgroup** and press Enter.
2. Type **add** and press Enter.
3. Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
UCDNAME			This is the name of the UCD group. It can be up to 16 characters in length. The first eight characters must be unique.
ACD		N	Automatic call distribution is not supported.
CUSTGRP			Name of the customer group to which the UCD group belongs.

Field	Subfield	Entry	Explanation and action
UCDRNGTH			Ringing threshold, in one-second intervals, after which an unanswered call to a UCD agent is forwarded to the route specified in the THROUT field. Range is 0–63.
TABNAME		OFRT	Table to which translations are routed. Table UCDGRP repeats the TABNAME and INDEX field prompts as shown here.
INDEX			Number assigned to the route list in table OFRT (1–1023).
TABNAME		OFRT	Table to which translations are routed.
INDEX			Number assigned to the route list in table OFRT (1–1023).
PRIOPRO			Maximum time, in seconds, a call can wait in a UCD group (0–255).
MAXPOS			Maximum number of UCD agent positions that can be active at one time. This number corresponds to the number of channels allocated to the group on the CallPilot system (0–96).
DBG			Delayed billing. Set to Y if billing starts when the call is answered by a UCD agent. Set to N if billing starts when the caller receives a recorded announcement.
DEFPRIO		0	Default priority number applicable to local calls terminating on the primary UCD DN (0–3).
RLSCNT		0	Maximum number of calls that terminate on a UCD station but are not answered (0–31).

Field	Subfield	Entry	Explanation and action
MAXWAIT			Maximum time, in seconds, that a call waits in the incoming call queue before being answered (0–1800).
MAXCQSIZ			Maximum number of calls that can be in the incoming queue waiting for an idle channel (0–511).
OPTION		UCD_SMDI	
SMDI_LINK			The terminal designation defined in table SLLNKDEV.
SMDI_DESK_NO			Message desk number (1–63). If you have more than one UCD group, one of them must be set to 63. For simplicity, Nortel Networks recommends that the first UCD group on a data link be set to 63. The second is set to 62, and descending through 61, 60, ...2, 1.
Note: If CRR (Call Request Retrieval) is used, all requests are made to the UCD group with SMDI_DSK_NO = 63.			

Assigning a primary DN to a UCD group

To datafill table DNROUTE

ATTENTION

Each UCD group must have a unique primary DN.

1 Type **table dnroute** and press Enter.

2 Type **add** and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
DNNM		See the explanation.	Consists of AREACODE, OFCCODE, and STNCODE subfields. This is the DN for the UCD group specified as the UCDGRP.
	AREACODE		See DNNM explanation.
	OFCCODE		See DNNM explanation.
	STNCODE		See DNNM explanation.
DN_SEL		FEAT	DN selector FEAT
FEATURE		UCD	
UCDGRP			The UCDNAME that is defined in table UCDGROUP.
DNTYPE		PRIM	PRIM indicates the DN is the Primary UCD DN for the UCD group.
TOLLPRIO		0	Priority of toll calls terminating on the Primary UCD DN. Zero is the highest priority.

4 Repeat this procedure for each UCD group.

Defining line location

Introduction

The Line Circuit Inventory table (table LNINV below) contains the assignment for each card slot on the line or remote line module.

To datafill table LNINV

1 Type **table lninv** and press Enter.

2 Type **add** and press Enter.

3 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
LEN			Line equipment number of the card slot.
CARDCODE		5d11ae	Product engineering code for the line card. Enter 5d11ae for the Line Side T1 card.
PADGRP			Name of the appropriate pad group in the PADDATA table.
STATUS		WORKING	Line inventory availability status should be “working.”
GND		Y	Enter Y for Line Side T1 card.
BNV		NL	Balanced network value is non-loaded.
MNO		Y	Manual override is set to YES, so that onhook balance network tests do not update this field.
CARDTYPE		NIL	

Adding agents to a UCD group

Introduction

Once you have created a UCD group, you can add agents to it.

Before you begin

Have a list of the Agent DNs you want to add to the UCD group.

If you have multiple UCD groups, identify the UCD group that each agent will service. CallPilot requires a separate UCD group for each media type (voice, fax, and speech recognition).

If the customer is dedicating some channels to a particular service, then there must be an additional UCD group for each service that will have dedicated channels.

Modifying the MAXPOS value

If you are adding additional agents to an existing UCD group, you might have to modify the MAXPOS value for the UCD group to which you are adding agents. The MAXPOS value determines the maximum number of agents that can be active at one time. If, by adding new agents, you exceed this value, you cannot add the additional agents unless you change the MAXPOS value.

The MAXPOS value is defined in table UCDGRP.

To add agents

Type **servord** and press Enter. Then respond to the prompts in the following table:

Prompt	Input	Description
SO:	NEW	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN:		Directory Number of the line. Use ten-digit DNs.
LCC_ACC:	IBN	Line class code of service
GROUP:		Name of the IBN customer group to which the line belongs. For example, covm.
SUBGRP:		Subgroup number. For example, 0.
NCOS:		Network class of service. For example, 1.
SNPA:		Serving NPA (area code) of the DN
LEN_OR_LTD:		Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION:	COD	Cut-off on Disconnect
OPTION:	UCD	Uniform Call Distribution
OPTION:	DGT	Digitone
OPTION:	3WC	Three-way calling
OPTION:	CXR	Call Transfer
CXFERTYP	CTALL	Call Transfer Type. CTALL = transfer all calls.
CXRRCL	N	Call Transfer Recall
METHOD	STD	Method of Call Transfer: Std = Std Call Transfer method.

Prompt	Input	Description
OPTION:	SMDI	Simplified Message Desk Interface
LINENO:		The UCD terminal number. This is the line number associated with the SMDI channel.
UCDGRP:		The UCDNAME from the UCDGRP table. This is the UCD group to which you are adding the agent.
AUTO_LOG:	Y	Autologon capability required.
OPTION:	$	The data you have entered appears.
	Y	Enter Y to confirm the data.

Creating a line DN

Introduction

A line DN does not have agents. Instead, it forwards to a UCD group. If the line DN is for a voice service, then it forwards to the Voice UCD group. If the line DN is for a fax service, then it forwards to the Fax UCD group. If the line DN is for a speech recognition service, then it forwards to the Speech Recognition UCD group.

When to use

Add a line DN for each CallPilot service that you want to make directly dialable by users and callers.

Examples

You want to provide users with Express Messaging capability. You create a line DN for Express Messaging so that it has a unique DN that can be dialed.

You want to create six Voice Menus that you must make available to callers. You create six line DNs so that each Voice Menu has a unique number that can be dialed.

CFF versus CFU

In the following procedure, choose either CFU (Call Forward Universal) or CFF (Call Forward Fixed) as the forwarding option. Note that CFU requires extra configuration.

To create a line DN

Type **servord** and press Enter. Then respond to the prompts in the following table:

Prompt	Input	Description
SO:	NEW	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN:		The directory number of the line. This is the DN you enter in the SDN table.
LCC:	IBN	Line class code of service
GROUP:		The name of the IBN customer group to which the line belongs.
SUBGRP:		The subgroup number
NCOS:		Network class of service
SNPA:		Serving NPA (area code) of the DN
LEN		Line equipment number of the line. For example, 4 0 1 0.
Note: The following three entries are optional.		
OPTION:	cfb	Call Forward Busy
CFBCNTL:	N	(Normal assignment for CFB)
CFBDN:		The Primary UCD DN
Note: Configure CFF or CFU (not both).		
OPTION:	CFF	Call Forward Fixed
CFFDN:		The Primary UCD DN
OPTION:	CFU	Call Forward Universal
OVRDACR	N	Override Automatic Callback

Prompt	Input	Description
OPTION:	$	The data you entered appears.
	Y	Enter Y to confirm the data.

To finish configuring CFU

If you selected the CFU option in the previous procedure, follow either Method 1 or Method 2 to finish configuring CFU. Nortel Networks recommends Method 1 for the following reasons:.

- Method 1 (at a telephone) provides a confirmation tone to the administrator to confirm that the proper programming was performed.
- Method 2 (at the MAP terminal) provides no confirmation feedback and can potentially overwrite other data in the same entry.

Method 1—To configure CFU at a telephone (recommended method)

1. Connect a phone to the line.
2. Go off-hook.
3. Dial the call forward activation code followed by the UCD DN.

   Example: *80 2326050

   Note: If you do not know this code, look it up in table IBNXLA. It is the CFWP entry.
4. Listen for the confirmation tone. The confirmation tone indicates that the line has been forwarded.

   Note: If the switch is restarted, you must repeat steps 1 to 4 for each line DN that CFUs to the UCD group.

Method 2—To configure CFU at the MAP terminal

1 Type **table cfx** and press Enter.

2 Respond as shown in the table below:

Field	Subfield	Entry	Explanation and action
		pos x x x x 0	xxxx is the Line Equipment Number (LEN) you defined for the Line DN. Enter a 0 at the end of the LEN.
		cha	Indicates you want to change the CFU DN.
CFUIF			Enter the primary DN of the UCD group to which you want to forward the line DN.
CSTATE		A	CFU is active.

Moving an agent from one UCD group to another

Introduction

You might need to move an agent from one UCD group to another if you have dedicated channels to a particular service and you find through analyzing traffic studies that you need more channels.

Or, you might find that the efficiency of the system has gone down, and you want to reduce the number of channels that are dedicated to a service and move them to a UCD group where they can be shared among more services.

ATTENTION

Any changes made to the UCD groups must correspond to changes in CallPilot. The number of UCD agents that service a media type must match the number of those media channels in CallPilot (for example, five UCD agents in the Fax UCD group and five fax channels in CallPilot).

To move an agent from one UCD group to another

1. Determine if moving agents to a new UCD group will cause the MAXPOS value of that UCD group to be exceeded.

   If yes, modify the MAXPOS value for the UCD group to which you are moving agents. This is done in table UCDGRP.

2. Use servord command DEO to delete those agents that are being moved. See "To delete an agent from a UCD group" on page 156.

   Note: If you do not delete extra agents that are no longer mapped to a CallPilot channel, these agents can cause endless ringing on the CallPilot system.

3. Use servord command ADO to move (add) the agents to the new UCD group. See "To move an agent to another UCD group" on page 156.

To delete an agent from a UCD group

Type **servord** and press Enter. Then respond to the prompts in the following table:

Prompt	Input	Description
SO:	DEO	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN_OR_LEN:		The DN or Line Equipment number of the UCD agent.
OPTION:	SMDI	
OPTION:	$	The data you entered appears.
	Y	Enter Y to confirm the data.

To move an agent to another UCD group

Enter **servord**, and then respond to the prompts in the following table:

Prompt	Input	Description
SO:	ADO	
SONUMBER:	press Enter	When to invoke service. Press Enter for the current date and time.
DN_OR_LEN:		The DN or Line Equipment number of the UCD agent.
OPTION:	SMDI	
LINENO:		The line number position in the UCD SMDI group.
UCDGRP:		The name of the new UCD group to which you want to move the agent (the UCDNAME from table UCDGROUP).

Prompt	Input	Description
AUTO_LOG:	Y	Autologon capability is required.
OPTION:	$	The data you entered appears.
	Y	Enter Y to confirm the data.

Entering feature activation codes

Introduction

The feature activation codes required to set up and access message waiting are entered in table IBNXLA.

To datafill table IBNXLA

1. Type **table ibnxla** and press Enter.
2. Type **add** and press Enter.
3. Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
KEY			Consists of subfields XLANAME and DGLIDX
	XLANAME		Name of the translator, 1–8 characters, for the feature
	DGLIDX		Access code for the feature
RESULT			Consists of subfields TRSEL, ACR, SMDR, and FEATURE
	TRSEL	FEAT	The feature translation selector
	ACR	N	Account codes not required
	SMDR	N	Station Message Detail Recording off
Note: Not all the features below are required.			
	FEATURE	CRA	Call request activate
		CRR	Call request retrieve
		CRDS	Call request delete specific

		CRDA	Call request delete all
		UCDD	Universal Call Distribution Deactivate **Note:** Only digits 0 to 9 are supported. The characters * or # are not supported. See "Login and Logout code restrictions" on page 132.
		UCDA	Universal Call Distribution Activate **Note:** Only digits 0 to 9 are supported. The characters * or # are not supported. See "Login and Logout code restrictions" on page 132.
		CFWP	Call Forward Program
		CFWC	Call Forward Clear

Checking OFCVAR values

Introduction

Make sure that the cutoff-on-disconnect time in table OFCVAR is set to one second (100).

To check OFCVAR values

1 Type **table ofcvar** and press Enter.

2 Respond as shown in the following table:

Field	Subfield	Entry	Explanation and action
		pos CUTOFF_ON_DISC_TIME	Check that the value is 100 (one second). If not, change the value to 100.
		cha	Enter cha to change the value.
PARMVAL		100	Specifies cutoff-on-disconnect (COD) time for lines assigned the COD option.

Call routing options and features for user phonesets

Introduction

The following call routing options and features are available:

- Three-way Calling
- Digitone
- ***Call Forward Don't Answer*** Specify the Voice Messaging DN as the forwarded DN, and Call Answer is activated for the user when the user is not available to answer the call.
- ***Call Forward Busy*** Specify the Voice Messaging DN as the forwarded DN, and Call Answer is activated for the user when the user is on the phone.
- ***Call Forward Universal*** If Call Forward Universal is activated (this is controlled by the user at the phoneset), the call can be rerouted to the Voice Messaging DN.
- ***Message Waiting*** A user is notified of a new message by a lit message-waiting lamp or an audible indication (interrupted dial tone).

Note: The Key-Short-Hunt (KSH) option is not compatible with CallPilot.

To set call routing options for single line phonesets

Type **servord** and press Enter. Then respond to the prompts in the following table. Repeat this procedure for each user.

Prompt	Input	Comments
SO	NEW	If the DN already exists, the ADO command can be used to add options to the existing line.
SONUMBER	Press Enter	When to invoke service. Press Enter for the current date and time.
DN		User's DN

LCC_ACC	IBN	Line class code of service
GROUP		Name of the IBN customer group to which the line belongs
SUBGRP		Subgroup number
NCOS		Network class of service
SNPA		Serving NPA of the DN
LEN_OR_LTD		Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTION	DGT	Digitone
OPTION	CFU or CFI	Call Forward Universal (CFU) or Call Forward Intergroup (CFI)
Note: If you select CFU, the prompt OVRDACR appears.		
OVRDACR	N	Override Automatic Callback
OPTION	CFB	Call Forward Busy
CFBCNTL	N	(Normal assignment for CFB)
CFBDN		Enter the Primary DN for the Voice Messaging UCD group.
OPTION	CFD	Call Forward Don’t Answer
CFDCNTL	N	(Normal assignment for CFD)
CFDDN		Enter the Primary DN for the Voice Messaging UCD group.
OPTION	MWT	Message Waiting
NOTICE	CMWI, MWL, PRN, STD, MWL_STD	Message waiting indication
CAR	N	No call request feature

CRX	N	Not call request exempt
OPTION	$	

To set call routing options for multi-line phonesets

Type **servord** and press Enter. Then respond to the prompts in the following table. Repeat this procedure for each user:

Prompt	Input	Comments
CI:		
>	SERVORD	Request Service Order Utility
SO	NEW or ADO	User's DN
SONUMBER	press Enter	When to invoke service. Press Enter for the current date and time.
DN		User's Directory Number
LCC_ACC		Type of phoneset
GROUP		The name of the customer group to which a user belongs.
SUBGRP	0	N/A (normally used when stations are assigned to attendant consoles)
NCOS	0	N/A (normally used to restrict dialing out)
SNPA		Serving NPA of the DN
KEY	1	Primary key (1)
RINGING	Y	Y = yes, key 1 is ringing line
LEN_OR_LTD		Line equipment number of the line. For example, 4 0 1 0 (separated by spaces).
OPTKEY		Key number for assigning forwarding options to use with CallPilot.

OPTION	CFI or CFU	Allow Call Forward Intragroup (CFI) or Call Forward Universal (CFU).
Note: If you select CFU, the prompt OVRDACR appears.		
OVRDACR	N	Override Automatic Callback.
KEYLIST		DNs to which Call Forward will apply ***Note:*** If SO=NEW, you can define CF for Key 1 only at this time.
OPTKEY		Key number for assigning forwarding options to use with CallPilot. Same key as CFI.
OPTION	CFB	Allow Call Forward Busy
CFBCNTL	N	N = No
CFBDN		Enter the Primary DN for the Voice Messaging UCD group.
OPTKEY		Key number for assigning forwarding options to use with CallPilot. Same key as CFI/CFB.
OPTION	CFD	Allow Call Forward Don’t Answer
CFDCNTL	N	N = No
CFDDN		Enter the Primary DN for the Voice Messaging UCD group.
OPTKEY		Key number for message waiting option
OPTION	MWT	Allow Message Waiting
CAR	N	N=No
CRX	N	N=No
OPTKEY	$	End of input

Starting up the link

Introduction

When you finish filling in the switch data tables, you can start up the link. Below are the procedures for a switch that has a 1X89 card in an IOC followed by procedures for a switch that has an IOM (NTFX30xx).

To start up the link (for 1X89 card)

1. Put the IOC card into service by entering the following commands:
   a. **MAPCI**
   b. **MTC**
   c. **IOD**
   d. **IOC c** (where c is the circuit number, for example, 0)
   e. **CARD n** (where n is the card number, for example, 5)
   f. **RTS**
2. Put the link into transferring state by entering the following commands:
   a. **MAPCI**
   b. **MTC**
   c. **IOD**
   d. **IOC c** (where c is the circuit number, for example, 0)
   e. **CARD n** (where n is the card number, for example, 5)
   f. **RTS LINK p** (where p is the link number)
3. Once the datalink has been set up, the UCD lines (agents) must be put into service. Enter the following commands for each agent:
   a. **MAPCI**
   b. **MTC**
   c. **LNS**
   d. **LTP**

e. **2D dn** (where dn is the UCD agent's DN)

f. **RTS**

To disable message transfer on the link (for 1X89 card only)

To shut down message transfer on the link, enter the following commands:

1 **MAPCI**

2 **MTC**

3 **IOD**

4 **IOC c** (where c is the circuit number, for example, 0)

5 **CARD n** (where n is the card number, for example, 5)

6 **BSY n [FORCE]** (where n is the card number, for example, 5; and FORCE is an optional parameter that you can use if the link is currently in use and you need to immediately shut down the link)

To start up the link (for 1X89 MPC port option on the IOM)

1 Put the port into service by entering the following commands:

a. **MAPCI**

b. **MTC**

c. **IOD**

d. **IOC c** (where c is the circuit number, for example, 0)

e. **PORT n** (where n is the port number, for example, 5)

f. **RTS**

2 Put the link into transferring state by entering the following commands:

a. **MAPCI**

b. **MTC**

c. **IOD**

d. **IOC c** (where c is the circuit number, for example, 0)

e. **PORT n** (where n is the port number, for example, 5)

f. **RTS LINK p** (where p is the link number; this is always 3)

3 Once the datalink has been set up, the UCD lines (agents) must be put into service. Enter the following commands for each agent:

   a. **MAPCI**

   b. **MTC**

   c. **LNS**

   d. **LTP**

   e. **2D dn** (where dn is the UCD agent's DN)

   f. **RTS**

To disable message transfer on the link (for 1X89 MPC port option on the IOM)

To shut down message transfer on the link, enter the following commands:

1 **MAPCI**

2 **MTC**

3 **IOD**

4 **IOC c** (where c is the circuit number, for example, 0)

5 **PORT n** (where n is the port number, for example, 5)

6 **BSY n [FORCE]** (where n is the card number, for example, 5; and FORCE is an optional parameter that you can use if the link is currently in use and you must immediately shut down the link)

Adjusting the volume level

Introduction

If the volume of recorded messages on the lines proves to be unacceptable, make modifications to the MSL-100/DMS-100 Gain/Loss settings. Use the PADDATA program to make these changes. The following settings are affected:

- Gain/Loss from the line card to CallPilot
- Gain/Loss from CallPilot to the line card

The values given to these Gain/Loss settings depend on your specific operating requirements. These settings have the following appearance:

- STDLN customer_name *x y*

where customer_name is the customer name you have defined for your system in the Line Inventory table (LNINV)

For a loss, append L to the number. For example, 10L means a loss factor of 10.

Recommended settings

For more information on the PADDATA program, refer to one of the following NTPs:

- For MSL-100 switch, refer to the *Customer Data Schema Reference Manual* (NTP 555-4031-851).
- For DMS-100 switch, refer to the *Customer Data Schema Reference Manual* (NTP 297-8001-351).

What's next?

Continue with Section B: "MSL-100/DMS-100 switch," on page 229.

Section C: Lucent, Mitel, or Rolm switch

In this section

Switch hardware and software requirements 170
Overview of switch programming 172
Programming the Lucent Definity Generic 3 switch 177
Programming the Mitel switch 185
Programming the Rolm switch 190

Switch hardware and software requirements

Introduction

The following table indicates the line cards that work with CallPilot and the minimum switch software version required for CallPilot. If the line card is not already installed, then refer to the documentation for your switch for installation instructions.

Switch model	Switch software	Line card	Number of ports
Lucent 2-wire port type			
Required options: Voice Mail Application Support = YES			
G3, or System 75 or G1 switches that have been upgraded to G3	G3V3 + G3V6 +	TN2181 V7 TN2224	16 24
Mitel			
SX-200D	Lightware 15 +	Digital Line	12
SX-200 Light	Lightware 15 +	Digital Line	12
SX-2000 Light	All M Streams	DNI line: MC330	16
SX-2000 S	All M Streams	DNI line: MC330	16
SX-2000 VS	All M Streams	DNI line: MC330	16

Switch model	Switch software	Line card	Number of ports
Rolm			
Required options: Message Waiting Interface			
8000	8003 +	RPI 1 and 2: 78011 and 78012	16
9000	All versions	RPI 1 and 2: 78011 and 78012	16
9751 (9005)	All versions	RLI: 90678	16
9751 (9006)	9006.3 to 9006.4	SLRM, SLRM2, SLRM3	8, 16, 24

Overview of switch programming

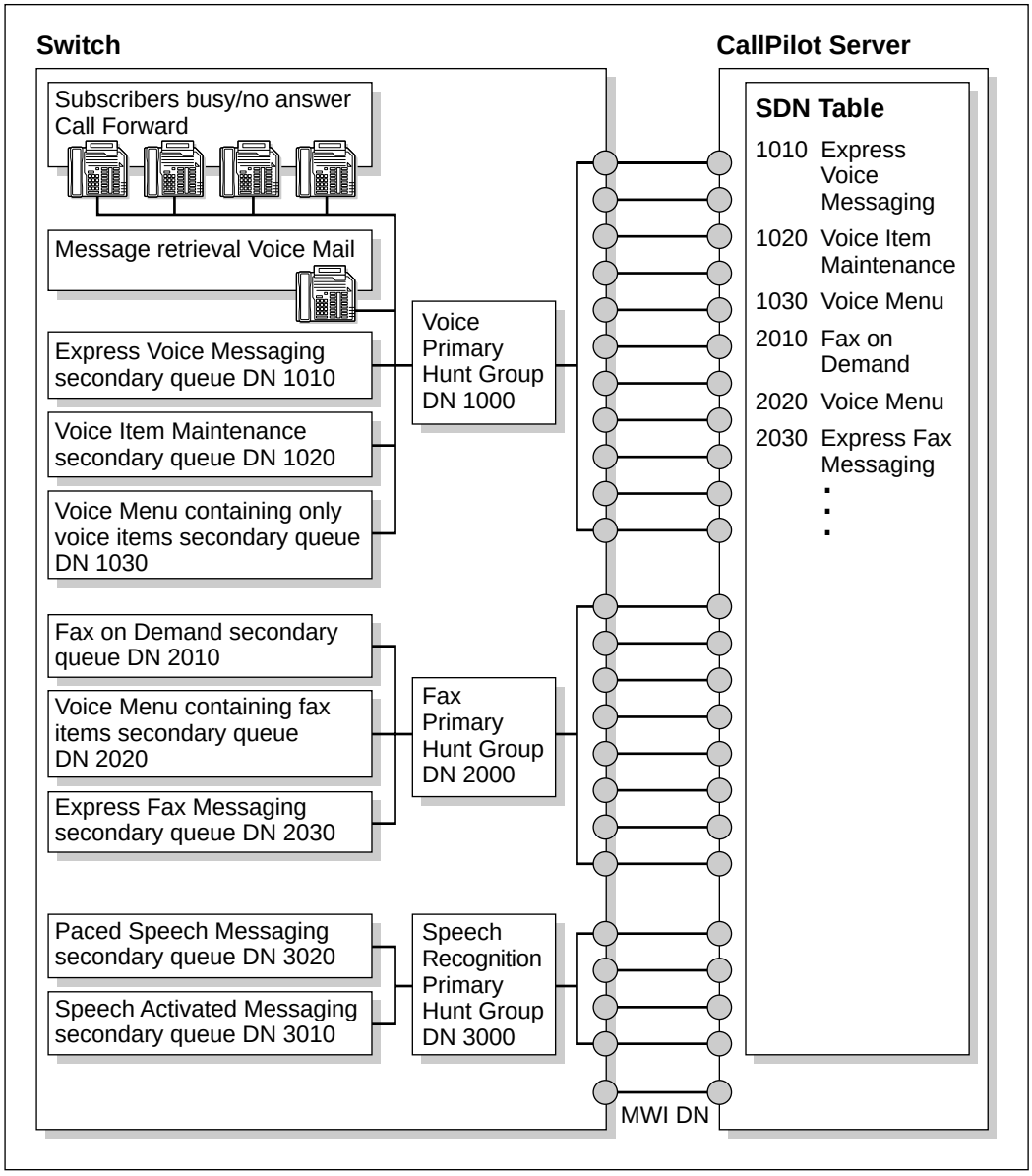
Introduction

This section explains how to program your Lucent, Mitel, or Rolm switch to interact with CallPilot.

The call model

Each port on the VB2000 card(s) installed in the CallPilot server is connected to a port on the switch and configured in the switch as a digital set.

These digital sets form hunt groups; each hunt group has a single extension number. When required, the switch transfers incoming calls to the appropriate hunt group. The first available port on the CallPilot server picks up the call, and CallPilot plays the appropriate greeting. CallPilot uses the same switch-VB2000 connection to send commands and information back to the switch as required, emulating the interface presented by a digital set connected to the switch.


Switch
CallPilot Server
Subscribers busy/no answer Call Forward
Message retrieval Voice Mail
Express Voice Messaging secondary queue DN 1010
Voice Item Maintenance secondary queue DN 1020
Voice Menu containing only voice items secondary queue DN 1030
Voice Primary Hunt Group DN 1000
Fax on Demand secondary queue DN 2010
Voice Menu containing fax items secondary queue DN 2020
Express Fax Messaging secondary queue DN 2030
Fax Primary Hunt Group DN 2000
Paced Speech Messaging secondary queue DN 3020
Speech Activated Messaging secondary queue DN 3010
Speech Recognition Primary Hunt Group DN 3000
MWI DN
SDN Table
1010 Express Voice Messaging
1020 Voice Item Maintenance
1030 Voice Menu
2010 Fax on Demand
2020 Voice Menu
2030 Express Fax Messaging

G101373

Five components of switch configuration

Specific programming requirements vary from switch to switch, but there are five fundamental tasks you must perform to program a switch to interact with CallPilot via Digital Set Emulation.

1. On the switch, create and configure one digital set for each VB2000 port (eight per card) installed on the CallPilot server.

   This step activates the switch ports that will service the voice messaging system.

2. Designate one digital set for processing Message Waiting Indicator (MWI) signals. *Do not* include this port in any hunt groups that will receive and send calls.

   Nortel Networks recommends that you use the digital set associated with the last port on the first VB2000 card for the MWI signals. If you configure a digital set for each port on the first VB2000 card, then this is the eighth digital set and the eighth DN. The first VB2000 card must be operational for CallPilot to receive calls. If the first VB2000 card fails, the MWI port is disabled but CallPilot is also not able to receive calls. Therefore, as long as CallPilot is receiving calls, the MWI functionality is also operational if you use a port on the first VB2000 card for MWI.

   Also, if the first VB2000 card fails and a new card is not readily available, you can use another VB2000 card in the CallPilot server to replace the first VB2000 card. This is described in the VB2000 card replacement procedures in Part 5 of this binder. Again, the first VB2000 card must be operational for CallPilot to receive calls.

   This step determines which line CallPilot uses to send signals to the switch to activate (message waiting) or deactivate (message retrieved) any user's MWI.

3. Set up primary hunt groups; assign each digital set configured in step 1 to a hunt group, leaving out the MWI line designated in step 2. At a minimum, you need one hunt group for each media type (voice, fax, speech recognition) on your system. The digital sets or ports contained in a hunt group can only process calls of one media type. Where necessary, add one coverage path for each hunt group, with that hunt group as its destination.

This step creates collection points for incoming calls to CallPilot. Calls are then distributed to available ports in the hunt group.

4. Add a secondary queue for each service that will be directly dialable by users. Each secondary queue (either a hunt group with no DNs in it, or a telset set to call forwarding for all calls) forwards calls to the appropriate primary hunt group.

   This step gives each directly dialable service an individual DN. A user dials the DN, and CallPilot answers the call with the service that matches that called DN.

5. Program subscriber sets. Set call forwarding to the Voice or Fax primary hunt group (as appropriate) in circumstances of Busy/No Answer. If necessary, program an MWI. For voice users, publish the Voice Primary hunt group DN, or program it into a key on the subscriber set, or both, to provide a route for retrieving messages. Where necessary, include subscriber DN in the subscriber's "Name" field.

   This step sets up the link between subscribers and Call Answering/Voice Messaging. Busy/No Answer calls are sent to Call Answering; CallPilot can signal the presence of messages, and subscribers can access their mailboxes to retrieve messages.

Digital set emulated for each switch model

Switch	Digital set emulated
Lucent 2-wire port type Lucent Definity Generic 3	Lucent 8434
Mitel SX-200D, SX-200 Light, SX-2000 Light, SX-2000 S, SX-2000 VS	Mitel Superset 430
Rolm 8000, 9000, 9751 (9005), 9751 (9006)	Rolm 400

Complete the procedures for switch programming

For step-by-step instructions on switch programming for your particular switch, see one of the following sections:

Switch type	Page
Programming the Lucent Definity Generic 3 switch	177
Programming the Mitel switch	185
Programming the Rolm switch	190

Programming the Lucent Definity Generic 3 switch

Introduction

This section describes the switch programming for the Lucent Definity Generic 3 switch (2-wire port type).

Note: This document describes the configuration you must create in your switch and the breakdown of tasks. For information on the specific commands and responses used in the switch's programming interface, see your switch documentation.

Before you begin

Before you begin switch programming, you must have the following information ready:

- switch port addresses and DNs for each port (eight per card) on the VB2000 card(s) in your CallPilot server
- the DNs for each primary hunt group (at a minimum, there must be one primary hunt group for each media type on your voicemail system—voice, fax, speech recognition)
- the DNs for each of the secondary hunt groups (one per dialable service)
- the Class of Service/Class of Restriction (COS/COR) to be applied to outgoing calls on CallPilot (VB2000) ports. CallPilot incorporates its own calling restrictions; you set these when you set up your messaging system. The COS/COR applied to your VB2000 DNs must not be more restrictive than your CallPilot settings, or CallPilot cannot function properly.

Step 1: Create/configure digital sets for 2-wire port type

Add one set for each port on the VB2000 card(s) in your CallPilot server. Use the set configuration requirements laid out in the following table:

Set Type	8434DX
Port Type	2-wire
Name	Voice Mail (or whatever you want to appear on set displays during voice mail sessions)
COR	See “Before you begin” on page 177.
COS	See “Before you begin” on page 177.
LWC Reception?	N
LWC Activation?	Y
CDR Privacy?	N
Redirect Notification?	Y
Per Button Ring Control?	N
Bridged Call Alerting?	N
Active Station Ringing	single
Data Module?	N
Speakerphone	2-way
Display Language:	English
Message Lamp Ext:	Use the extension number assigned for this station.
Auto Select Any Idle Appearance?	N

Coverage Msg Retrieval?	Y
Auto Answer:	none
Data Restriction?	N
Idle Appearance Preference?	N
Restrict Last Appearance?	Y
Mute Button Enabled?	Y
Expansion Module?	N
Disp Client Redir?	N
Select Last Used Appearance?	N
Button Assignments	1 - call-appr 2 - call-appr 9 - Lwc- Store 10 - Lwc - Cancel

Step 2: Designate the MWI DN

Designate one of the configured sets as the Message Waiting Indicator (MWI) DN. CallPilot uses this line to signal the switch to turn on and turn off subscribers' MWI indicators as messages are left and retrieved.

Note: Nortel Networks recommends that you use the digital set associated with the last port on the first VB2000 card for the MWI DN. If you have configured a digital set for each port on the first VB2000 card, then this is the eighth digital set and the eighth DN. The first VB2000 card must be operational for CallPilot to receive calls. If the first VB2000 card fails, the MWI port is disabled but CallPilot is also not able to receive calls. Therefore, as long as CallPilot is receiving calls, the MWI functionality is also operational if you use a port on the first VB2000 card for MWI.

There is no switch programming required for this step; record the designated DN. Later in the installation procedure, you are instructed to program CallPilot to use it for MWI signals.

ATTENTION

Since this line must be free to transmit MWI On and MWI Off signals, *do not* include it in any hunt groups that process incoming calls.

Step 3: Set up primary hunt groups and coverage paths

Add the primary hunt groups. Each primary hunt group contains one or more of the VB2000 port DNs. At a minimum, you need one primary hunt group for each media type (voice, fax, speech recognition) on your system.

Use the hunt group configuration requirements in the following table:

Group Extension	Enter the hunt group's DN.
Group Type	UCD
Group Name	VB2000
Queue?	Enter N for fax hunt groups. For voice and speech recognition hunt groups, you can enter Y or N.
Group Member Assignments	List all the VB2000 DNs. In the Name column, add a name identifying which VB2000 port matches that DN (for example, VB2000 Port 1).

ATTENTION

Each VB2000 port DN can only appear in one hunt group.

Each VB2000 port DN (except the designated MWI DN) must be included in a primary hunt group. Otherwise, no calls are ever sent to that port, and it remains idle.

For *each* primary hunt group, add two coverage paths, as described here:

1. Add one coverage path that routes *all* calls to that hunt group. This is the coverage path you use for the secondary hunt groups. There is one secondary hunt group for each directly dialable CallPilot service. The secondary hunt groups forward the call to the appropriate primary hunt group.

   Use the coverage path configuration requirements in the following table:

Station/Group Status: Active?	N for both Inside and Outside calls
Station/Group Status: Busy?	Y for both Inside and Outside calls
Station/Group Status: Don't Answer?	Y for both Inside and Outside calls
Number of rings	3 (or standard number for the organization; 3 is recommended)
Station/Group Status: All?	N for both Inside and Outside calls
Coverage Points: Point1	number of the primary hunt group (for example, h1)

2. Add one coverage path that only routes busy and unanswered calls to the primary hunt group. This is the coverage path you assign to subscriber sets to send incoming calls to Voice Call Answering or Fax Call Answering, as appropriate.

   Use the coverage path configuration requirements in the following table:

Station/Group Status: Active?	N for both Inside and Outside calls
Station/Group Status: Busy?	N for both Inside and Outside calls

Station/Group Status: Don't Answer?	N for both Inside and Outside calls
Number of rings	3 (or standard number for the organization; 3 is recommended)
Station/Group Status: All?	Y for both Inside and Outside calls
Coverage Points: Point1	number of the primary hunt group (for example, h1)

Step 4: Set up secondary hunt groups

Add the secondary hunt groups. Each secondary hunt group corresponds to one directly dialable CallPilot service (for example, Express Fax Messaging or a Voice Menu). Users dial that hunt group's DN to access that service.

Note: Do not add secondary hunt groups for Voice Call Answering, Fax Call Answering, or Voice Messaging. Users who want to access these services dial the Voice or Fax primary hunt group DN.

Note: Services that can invoke other services must be forwarded to a primary hunt group that can accommodate *all* the services in the list. For example, if a Voice Menu incorporates only voice items, it should be forwarded to the Voice primary hunt group DN. If it incorporates a fax item, it should be forwarded to the Fax primary hunt group DN. If it incorporates a speech recognition item, the voice menu's secondary queue should be forwarded to the Speech Recognition primary hunt group.

For each secondary hunt group, use the hunt group configuration requirements in the following table:

Group Extension	Enter the secondary hunt group's DN
Group Type	UCD
Group Name	VB2000

Coverage Path	Assign the coverage path that forwards *all* incoming calls to the appropriate primary hunt group for this service. Note that the primary hunt group must be able to handle all aspects of the service. For example, if a Voice Menu contains a pointer to a fax service, you must direct that Voice Menu to the Fax primary hunt group. Likewise, a menu containing a speech recognition item must be forwarded to the Speech Recognition primary hunt group.
Queue?	N
Group Member Assignments	Secondary hunt groups do not contain any DNs.

Step 5: Program subscriber sets

Program the subscriber sets for interaction with CallPilot. Use the set configuration requirements in the following table:

Name	The set's extension number *must* appear within the first 16 characters of the name field. It can appear in any position (for example, Smith, John 259, or 259 John Smith, or J Smith 259) as long as it is present. CallPilot cannot function properly without this item.

Coverage Path	Assign the coverage path that forwards busy/no answer calls to the appropriate primary hunt group. Voice lines require the coverage path for the Voice primary hunt group; fax lines require the coverage path for the Fax primary hunt group.
LWC Reception?	msa_spe
LWC Activation?	N
Message Waiting Indicator?	Y

As an added convenience, you can assign a speed dial button to take the user directly to the Voice primary hunt group DN to collect voice messages, or publish that DN for voice message retrieval, or both.

What's next?

Continue with Section C: "Lucent, Mitel, or Rolm switch," on page 247.

Programming the Mitel switch

Introduction

This section describes the switch programming for the Mitel SX-200D, Mitel SX-200D Light, Mitel SX-2000 Light, Mitel SX-2000VS, and Mitel SX-2000S switches.

Note: This document describes the configuration you must create in your switch and the breakdown of tasks. For information on the specific commands and responses used in the switch's programming interface, see your switch documentation.

Before you begin

Before you begin switch programming, you must have the following information ready:

- switch port addresses and DNs for each port (eight per card) on the VB2000 card(s) in your CallPilot server
- the DNs for each of the primary hunt groups (at a minimum, there must be one primary hunt group for each media type on your voice mail system—voice, fax, speech recognition)
- the DNs for all the directly dialable CallPilot services you will add to your system
- the Class of Service/Class of Restriction (COS/COR) to be applied to outgoing calls on CallPilot (VB2000) ports. CallPilot incorporates its own calling restrictions; you set these when you set up your messaging system. The COS/COR applied to your VB2000 DNs must not be more restrictive than your CallPilot settings or CallPilot cannot function properly.

Note: The Class of Service must enable the switch to provide all extension information under all call types. Do this as follows:

- Enable the COS #229, COV Voice Mail Port, in the COS group that you plan to assign to the CallPilot ports when you configure the digital sets. Use the "COS DEFINE" area off the main CDE menu to make this modification.

Step 1: Create/configure digital sets

Add one set for each port on the VB2000 card(s) in your CallPilot server. Use the set configuration requirements laid out in the following table:

Set Type	Superset 430 DNIC
COS	See “Before you begin” on page 185
COR	See “Before you begin” on page 185

After you create each set, expand the set and configure the key 01 as described in the following table:

TYPE	Prime
DIR	In/Out
RING	Immed
SEC	No
EXT NUM	the DN assigned when you created the set

Step 2: Designate the MWI DN

Designate one of the configured sets as the MWI DN. CallPilot uses this line to signal the switch to turn on and turn off subscribers’ MWI indicators as messages are left and retrieved.

Note: Nortel Networks recommends that you use the digital set associated with the last port on the first VB2000 card for the MWI DN. If you have configured a digital set for each port on the first VB2000 card, then this is the eighth digital set and the eighth DN. The first VB2000 card must be operational for CallPilot to receive calls. If the first VB2000 card fails, the MWI port is disabled but CallPilot is also not able to receive calls. Therefore, as long as CallPilot is receiving calls, the MWI functionality is also operational if you use a port on the first VB2000 card for MWI.

There is no switch programming required for this step; record the designated DN. Later in the installation procedure, you are instructed to program CallPilot to use it for MWI signals.

ATTENTION

Since this line must be free to transmit MWI On and MWI Off signals, *do not* include it in any hunt groups that process incoming calls.

Step 3: Set up primary hunt groups

Add the primary hunt groups. Each primary hunt group contains one or more of the VB2000 port DNs, with their physical addresses (BAY-SLT-CCT). At a minimum, you need one primary hunt group for each media type (voice, fax, speech recognition) in your system. Use call routing methods that select the least-used port rather than a method that causes calls to always land on the first port in the hunt group if it is idle.

ATTENTION

Each VB2000 port DN can only appear in one hunt group.

Each VB2000 port DN (except the designated MWI DN) must be included in a primary hunt group. Otherwise, no calls are ever sent to that port, and it remains idle.

Assign each hunt group a pilot number.

Note: Hunt groups can only contain 48 members. If you have a primary hunt group that must contain more than 48 VB2000 ports (more than six VB2000 cards), create a second “overflow” primary hunt group containing the extra DNs. Set the first hunt group’s Overflow DN to the pilot number of the second group.

Step 4: Set up secondary queues

Add one secondary queue for each directly dialable CallPilot service (for example, Express Fax Messaging or a Voice Menu). A secondary queue is a telset (analog or digital) that is call forwarded to the appropriate primary hunt group. Users dial the telset’s DN to access that service.

Note: Do not create secondary queues for Voice Call Answering, Fax Call Answering, and Voice Messaging. Calls for these services go directly to the appropriate primary hunt groups.

Once a secondary queue has been added and set to call forward to the appropriate primary hunt group (voice, fax or speech recognition), you can remove the telset from the physical port on the switch.

Note: Services that can invoke other services must be forwarded to a primary hunt group that can accommodate *all* the services in the list. For example, if a Voice Menu incorporates only voice items, it should be forwarded to the Voice primary hunt group DN. If it incorporates a fax item, it should be forwarded to the Fax primary hunt group DN. If it incorporates a speech recognition item, the voice menu's secondary queue should be forwarded to the Speech Recognition primary hunt group.

Step 5: Program subscriber sets

Program the subscriber sets for interaction with CallPilot. This can be done via the telset interface. Use the set configuration requirements in the following table:

NAME (not required for analog sets)	The set's extension number, followed by a space, *must* appear at the beginning of the name field (for example, 259 John Smith). CallPilot cannot function properly without this item.
CALL FORWARD	When no answer, and When set's busy For Voice Call Answering, assign the Voice primary hunt group DN as target DN. For fax telsets, assign the Fax primary hunt group DN as target DN.

MESSAGES KEY (optional)	If desired, and if the set supports speed dial keys, you can program a speed dial key with the Voice primary hunt group DN to facilitate message retrieval by subscribers.

What's next?

Continue with Section C: "Lucent, Mitel, or Rolm switch," on page 247.

Programming the Rolm switch

Introduction

This section describes the switch programming for the Rolm 8000 CBX, Rolm 9000 CBX, and Rolm 9751 CBX switches.

Note: This document describes the configuration you must create in your switch and the breakdown of tasks. For information on the specific commands and responses used in the switch's programming interface, see your switch documentation.

Before you begin

Before you begin switch programming, you must have the following information ready:

- switch port addresses and DNs for each port (eight per card) on the VB2000 card(s) in your CallPilot server
- the DNs for each of the primary hunt groups (at a minimum, there must be one primary hunt group for each media type on your voice mail system—voice, fax, speech recognition)
- the DNs for all directly dialable CallPilot services you plan to add to your system
- the Class of Service/Class of Restriction (COS/COR) to be applied to outgoing calls on CallPilot (VB2000) ports. CallPilot incorporates its own calling restrictions; you set these when you set up your messaging system. The COS/COR applied to your VB2000 DNs must not be more restrictive than your CallPilot settings or CallPilot cannot function properly.

Step 1: Create/configure digital sets

The virtual digital sets you create for the VB2000 ports require specific COS settings. Before you create the sets, Nortel Networks recommends that you modify the default settings for COS 15 as noted in the following table:

APV (always in privacy)	Yes
NFL (no flash allowed)	No
NOH (no howler)	Yes
DND (do not disturb)	No

Next, locate an available ROLMphone Interface (RPI) channel in the CBX. This is the basic digital port used by ROLMphone digital sets. Configure it to indicate that a ROLMphone 400 will be attached.

Locate an unused Feature Configuration Table. Configure it to match the following specifications:

Key 9	LINE 1
Key 10	HOLD
Key 30	CNCT (Connect)
Key 37	MWCTR (Message Waiting Center)
Key 38	XFER (Transfer)

Create one set for each port on the VB2000 card(s) in your CallPilot server. Use the set configuration requirements laid out in the following table:

Type	EXT
COS	15
Set Type	400

TBL NO.	Assign the table you have configured for use with the VB2000 ports.
SPKR PHONE	N
EXTN 1	Assign each set a unique extension number.
R	Y
MW	N
BI	N
CLD NME	N

Step 2: Designate the MWI DN

Designate one of the configured sets as the Message Waiting Indicator DN. CallPilot uses this line to signal the switch to turn on and turn off subscribers' MWI indicators as messages are left and retrieved.

Note: Nortel Networks recommends that you use the digital set associated with the last port on the first VB2000 card for the MWI DN. If you have configured a digital set for each port on the first VB2000 card, then this is the eighth digital set and the eighth DN. The first VB2000 card must be operational for CallPilot to receive calls. If the first VB2000 card fails, the MWI port is disabled but CallPilot is also not able to receive calls. Therefore, as long as CallPilot is receiving calls, the MWI functionality is also operational if you use a port on the first VB2000 card for MWI.

There is no switch programming required for this step; record the designated DN. Later in the installation procedure, you are instructed to program CallPilot to use it for MWI signals.

ATTENTION

Since this line must be free to transmit MWI On and MWI Off signals, *do not* include it in any hunt groups that process incoming calls.

Step 3: Set up primary hunt groups

Add the primary hunt groups. Each primary hunt group contains one or more of the VB2000 port DNs. At a minimum, you need one primary hunt group for each media type (voice, fax, speech recognition) in your system.

ATTENTION

Each VB2000 port DN can only appear in one hunt group.

Each VB2000 port DN (except the designated MWI DN) must be included in a primary hunt group. Otherwise, no calls are ever sent to that port, and it remains idle.

Configure the hunt group according to the following table:

Group Type	D
COS	0
Fwd/Busy Capability	N

Step 4: Set up secondary queues

Add one secondary queue for each directly dialable CallPilot service (for example, Express Fax Messaging or a Voice Menu). A secondary queue is a telset (analog or digital) that is call forwarded to the appropriate primary hunt group. Users dial the telset's DN to access that service.

Note: Do not create secondary queues for Voice Call Answering, Fax Call Answering, and Voice Messaging. Calls for these services go directly to the appropriate primary hunt groups.

Once a secondary queue has been added and set to call forward to the appropriate primary hunt group (voice, fax, or speech recognition), you can remove the telset from the physical port on the switch.

Note: Services that can invoke other services must be forwarded to a primary hunt group that can accommodate *all* the services in the list. For example, if a Voice Menu incorporates only voice items, it should be forwarded to the Voice primary hunt group DN. If it incorporates a fax item, it should be forwarded to the Fax primary hunt group DN. If it incorporates a speech recognition item, the voice menu's secondary queue should be forwarded to the Speech Recognition primary hunt group.

Step 5: Program subscriber sets

Program the subscriber sets for interaction with CallPilot, as follows:

- Set voice lines to forward to the Voice primary hunt group DN in busy and ring-no-answer conditions. Assign a message waiting button programmed to the Voice primary hunt group DN, so that each set has notification of waiting messages and a route to collect them.
- Set fax lines to forward to the Fax primary hunt group DN in busy and ring-no-answer conditions.

What's next?

Continue with Section C: "Lucent, Mitel, or Rolm switch," on page 247.

Section D: Matra switch

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Overview of switch programming

Introduction

Each port on the MPB16-2T board installed on CallPilot is connected to a port on the switch, and configured in the switch as an analog extension. These analog extensions form hunt groups. Each hunt group has a single extension number. When required, the switch transfers incoming calls to the appropriate hunt group. The switch places the call on the first available port in the hunt group. CallPilot answers the call and plays the appropriate greeting. CallPilot uses the same connection to send commands and information back to the switch as required, through DTMF code using Q23 protocol.

Tasks to perform switch configuration

The following are the basic tasks you must perform to program a switch to interact with CallPilot via DTMF code using Q23 protocol.

- Create and configure one analog extension for each analog port (up to 32 per MPB16-2T) on CallPilot. Assign these analog extensions to the ports on the switch that will be connected to the MPB16-2T ports.

  This step activates the switch ports that will service the voice messaging system.

- Designate one port/analog extension for processing Message Waiting Indicator signals. *Do not* include this port/set in any of the hunt groups that will receive or send calls. This step determines which line CallPilot uses to send signals to the switch, whenever any user's MWI needs to be turned on (message waiting) or off (message retrieved).

- Define three Q23 hunt groups. Assign each analog extension to the three Q23 hunt groups and allocate them according to service (Voice Messaging, Multimedia Messaging, and Speech Recognition). Leave out the MWI line. At a minimum, you require one hunt group for each media type (voice, fax, speech recognition) on your system.

  This step creates collection points for incoming calls to CallPilot. Calls are then distributed to available ports in the appropriate hunt group.

- Check your DTMF voice mail parameters.

- Configure the switch for extended Q23 protocol.
- Define the Q23 hunt group DN used to call your voice messaging service.
- Add a phantom DN for each service that will be directly dialable by users. Each phantom DN must be permanently call forwarded to the appropriate Q23 hunt group.

  This step gives each directly dialable service an individual DN. A user dials the DN, and CallPilot answers the call with the service that matches that called DN.
- Program subscriber sets. Set call forwarding to the Voice Messaging or Multimedia Messaging Q23 hunt group (as appropriate) in circumstances of Busy/No Answer. If necessary, program a Message Waiting Indicator. For voice users, publish the Voice Messaging hunt group DN, or program it into a key on the subscriber set, or both, to provide a route for retrieving messages.

  This step sets up the link between subscribers and Call Answering/Voice Messaging. Busy/no answer calls are now sent to Call Answering; CallPilot can signal the presence of messages, and subscribers can access their mailboxes to retrieve messages.

Matra M6501, M6504, and M6540 switches

Introduction

This section describes the switch programming for the M6501, M6504, and M6540 switches.

Before you begin

Before you begin switch programming, you must have the following information:

- switch port addresses or each port on the MPB16-2T boards in the CallPilot server
- the DNs for each of the three Q23 hunt groups (at a minimum, there is one Q23 hunt group for each media type on your CallPilot system: voice, fax, speech recognition)
- the DNs for each phantom DN (one per dialable service)

Step 1: Create and configure an analog extension

First declare an analog board (see "Switch hardware reference" on page 86 for a list of supported analog boards). Use the board management configuration requirements in the example below:

Getting there: MMI > 3 System Management > 2 Boards Management

```
"EQUIPMENT" CARD MANAGEMENT
              CARD 0-01: TYPE             ISDN 4T0-4S0
                       : IN SERVICE         .........
              CARD 0-02: TYPE               LRN-2 PCM
                       : DISABLED           .........
              CARD 0-03: TYPE           32 ANALOG EXT.
                       : IN SERVICE         .........
              CARD 0-04: TYPE          32 DIGITAL EXT.
                       : IN SERVICE         .........
              CARD 0-05: TYPE          16 DIGITAL EXT.
                       : IN SERVICE         .........
              CARD 0-06: TYPE           32 ANALOG EXT.
                       : IN SERVICE         .........
              CARD 0-07: TYPE              ..........

              CARD 0-08: TYPE           16 ANALOG EXT.
                       : IN SERVICE         .........
```

Add one analog extension for each port on the MPB16-2T in your CallPilot server. Declare all the analog extensions as DTMF V MAIL. Use the analog extension configuration requirements in the example below:

Getting there: MMI > 1 Telephony Management > 1 Extension Data > 1 Extension characteristics

```
ANALOG 0-06-00 EXTENSION

               SUBSCR. STATUS                  IN SERVICE

               DIRECTORY NUMBER                    5300..

               DID DN PLAN 1                       ......

               EXTENSION NAME                .............

               TYPE OF SET                    DTMF V MAIL

               ACCESS TO TL ROUTES AREA A            YES

               PREDEFINED FORWARD NO...................
```

Step 2: Designate the MWI DN

Designate one of the configured analog extensions as the Message Waiting Indicator DN. CallPilot uses this line to signal the switch to turn on and turn off subscribers' MWI indicators as messages are left or retrieved.

There is no switch programming required for this step; make a note of the designated DN. Later in the installation procedure, you will program CallPilot to use it for MWI signals.

ATTENTION

Since this line must be free to transmit MWI On and MWI Off DTMF codes, *do not* include it in any Q23 hunt group that will process incoming calls.

Step 3: Create and configure the three Q23 hunt groups

Add the three Q23 hunt groups. Each Q23 hunt group contains one or more of the analog port DNs. At a minimum, you need one Q23 hunt group for each media type (voice, fax, speech recognition) on your system.

Use the Q23 hunt group configuration requirements in the example below:

Getting there: MMI > 1 Telephony Management > 1 Extension Data > 4 Hunting group characteristics

```
   HUNT GROUP SELECTION

                 DN     DID    TYPE    NAME          NO.
                ----------------------------------------
                 1 5000   5000   CYCLIC  MESSAG VOC    7
                 2 4800          CYCLIC                2
                 3 5100   5100   CYCLIC  MULTIMEDIA    2
                 4 5200   5200   CYCLIC  SPEECH RECOG  2
                 5               .......               0
                 6               .......               0
                 7               .......               0
                 8               .......               0
                 9               .......               0
                10               .......               0

                HUNT GROUP NUMBER(1/30)                ..



HUNT GROUP CHARACTERISTICS 7
                DIRECTORY NUMBER                    ......
                DID DIRECTORY NO. PLAN 1            ......
                HUNT GROUP NAME                .............
                HUNT GROUP TYPE                     .......
                HUNT GROUP NATURE                 TELEPHONY
                USED FOR PRE-CALL DISTR.                NO
                DAY CATEGORY                    INTERNATIO.
                NIGHT CATEGORY                  INTERNATIO.
                CALL WAITING                ACCEPT AND BIP
                CALL FORWARDING PROTECTION              NO
                RETURN TO CONSOLE ON SPEC. TIME-OUT     NO
                PREDEFINED FORWARD NO...................


                CONSTITUENT DIRECTORY NUMBERS
                1                                   ......
```

ATTENTION

Each port DN can only belong to one hunt group. Each port DN (except the designated MWI DN) must be included in a Q23 hunt group. Otherwise, no calls are ever sent to that port, and it remains idle.

Step 4: Check your DTMF voice mail parameters

Getting there: MMI > 1 Telephony Management > 7 Others Parameter > 3 DTMF Voice mail Parameters

```
DTMF VOICE MAIL PARAMETERS
             PROTOCOL   AUTHENTIFICATION OR UNDEFINED

             SEQUENCES SENT TO VOICE MAIL
             - SINGLE CALL                B21.......
             - ENQUIRY CALL               B22.......
             - TRANSFER                   B23.......
             - INTERNAL CALL CONSULTATION B42.......
             - EXTERNAL CALL CONSULTATION B41.......
             - CONSULT MAIL BOX DIRECTLY
             - PREFIX, SEQ. AFTER NO B43.............
             - SEQUENCE INSERTD BFORE NO         ....
             - SUPERVISION                ..........
             - FORWARDING REQUEST         B51.......
             - TIME SETTING               ..........
             - START RECORDING            ..........
             - PAUSE RECORDING            ..........
             - RESUME RECORDING           ..........
             - END RECORDING              ..........

             SEQUENCES RECEIVED FROM VOICE MAIL
             - MESSAGES PRESENT             C1......
             - NO MESSAGES                  C2......
             - VOICE MAILBOX PRESENT        C51.....
             - NO VOICE MAILBOX             C52.....
             - SUPERVISION                  ........
             - TIME SETTING REQUEST         ........
```

The following table lists all of the Q23 messages and the format they use:

Name	FORMAT
Dial Tone	A1
Ring Tone	A2
Answer	A5
Busy Tone	A6
Simple Call	B21CalledDN*Status*Origin*CallingDN*CalledDN
Enquiry Call	B22CalledDN*Status*Origin*CallingDN*CalledDN
External Call Consultation	B41
Internal Call Consultation	B42Mailbox#
Forwarding Request	B51Mailbox#
Voice Mailbox Present	C51Mailbox#
No Voice Mailbox	C52Mailbox#
Messages Present (MWI On)	C1MailboxDn#
No Messages (MWI Off)	C2MailboxDn#

Note: The following DTMF codes are not used in Matra connectivity:

- B70 and C70 (supervision)
- B31, B32, B33 and B34 (conversation recording)
- B62 (time setting answer)
- C61 (time setting request)
- B43 (auto login)

Note: Code B43 (auto login code) is treated as a B42. Users must still enter # followed by their password to logon.

Note: A* codes cannot be set through this MMI. They are set by default on the switch.

Step 5: Configure switch for extended Q23 protocol

Set the configuration parameter number 333 (table 56) to the value 2.

Step 6: Define your primary hunt group DN (used for Voice Messaging)

Getting there: MMI > 1 Telephony Management > 7 Others Parameters > 2 Miscellaneous Parameters

```
MISCELLANEOUS PARAMETERS
            - ALLOW VARIABLE FORWARDING           NO
            - ALLOW CALL PICK-UP                 YES
            - ALLOW RECEPTION OF INTERNAL CALLS   NO
            - ALLOW CONSOLE OVERFLOW ON OVERLOAD  NO

            HUNT GROUP PARAMETERS
            - ALLOW CALL PICK-UP                 YES
            - ALLOW CALL WAITING BEEPS           YES
            - ALLOW LAST ACTIVE WITHDRAWAL        NO
            - LENGTH OF RETURN-TO-WORK ID CODE    1.

            VOICE MAIL PARAMETERS
            - VOICE MAIL CALL NUMBER      5000......
            ALLOW TRANSFER
            - TK TK                               NO
            - TK TL                               NO
```

Step 7: Create each phantom DN

Each phantom DN corresponds to one directly dialable CallPilot service (for example, Express Fax Messaging). Users dial that phantom DN to access that service.

Note: Do not use phantom DNs for Voice Messaging, Multimedia Messaging, and Speech Recognition services. Users who want to access these services can dial the appropriate hunt group DN (primary hunt group, secondary hunt group, and so on).

For each phantom DN, use the configuration requirements in the example below:

Getting there: MMI > 1 Telephony Management > 1 Extension Data > 1 Extensions characteristics

```
DIGITAL 0-05-00 EXTENSION
            SUBSCR. STATUS                IN SERVICE
            DIRECTORY NUMBER                 4010..
            DID DN PLAN 1                    ......
            EXTENSION NAME                .....------
            MULTIUSERS: DEFINED  0, AUTHORIZED    0.
            PASSWORD STATUS                RECORDED
            TELEPHONE SET MODEL             MC-610
            SERVICE BEARER                   SPEECH
            DAY CATEGORY                  INTERNATIO.
            NIGHT CATEGORY                INTERNATIO.
            DAY DISCRIMINATION RANGE         ........
            NIGHT DISCRIMINATION RANGE       ........
            HOT LINE TYPE                    ......
```

```
DIGITAL 0-05-00 EXTENSION
            INTERCOM TYPE              NO MONITORING

            PAGING GROUP NUMBER 1                ...
            PAGING GROUP NUMBER 2                ...
            ACCESS TO TL ROUTES AREA A           YES
            ACCESS TO PAGING                      NO
            PRIVILEGED SET                        NO
            PICK UP PROTECTION OVERRIDE           NO
            LOCKING ALLOWED                      YES
            UNLOCKING ALLOWED                    YES
            PICK UP PROTECTION                    NO
            NIGHT CATEGORY OVERRIDE              YES
            CALL FORWARDING PROTECTION            NO
            DYNAMIC PROTECTION                    NO
            DO NOT DISTURB ALLOWED                NO
            INTRUSION ALLOWED                    YES



DIGITAL 0-05-00 EXTENSION
            INTRUSION ACCEPTED                   YES
            MASTER OF CONFERENCE                  NO
            PRE-EMPTIVE REROUTING TO VOICE MAIL   NO
            USE OF DISA FUNCTION                  NO
            CALL WAITING              ACCEPT AND BIP
            RETURN TO CONSOLE ON SPEC. TIME-OUT   NO
            EXTERNAL FORWARDING ALLOWED           NO
            ASSISTANT FORWARDING ALLOWED          NO
            SPEAKER PAGING                        NO
            NETWORK SHIFT ALLOWED                 NO
            NETWORK REROUTING ALLOWED             NO
            ID SENT TO PUBLIC NETWORK          A.I.D
            ID SENT TO PRIVATE NETWORK         A.I.D
            ID SENT CAN BE MODIF. FOR EACH CALL   NO
            PRIORITY SET                          NO
            IMMEDIATE FORWARDING ALLOWED         YES
```

```
DIGITAL 0-05-00 EXTENSION
             FORWARDING ON BUSY ALLOWED           YES
             FORWARD ON NO ANSWER ALLOWED         YES
             RECORDED CALLS ALLOWED               YES
             AUTOMATIC CALLBACK ALLOWED           YES
             APPOINTMENT REMINDER ALLOWED         YES
             COMMON ABBREV. NUMBERS ALLOWED       YES
             PERSONAL ABBREV. NUMBERS ALLOWED     YES
             PERSONAL CALLS ALLOWED               YES
             TRANSFER BEFORE ANSWER ALLOWED       YES
             HUNT GROUP SETTING ALLOWED           YES
             MANAGER LINE NUMBER                  ...
             PREDEFINED FORWARD NO.................
             DEFER. FORWARD RING. DURAT.     STANDARD
             HOTEL ROOM SET TYPE                  NO
             EXT.LAST CALLERS CALL BACK           NO
             MAINTENANCE SET                      NO
```

```
DIGITAL 0-05-00 EXTENSION

            WRITTEN LANGUAGE                Francais

            USE AS VIRTUAL SET ALLOWED           NO

            BUSY FOR HUNT GROUP ON 1ST CALL      NO

            SUBSCRIBER MONITORING (RECORD)       NO
```

Only digital sets can be programmed to be used as phantom DNs. The digital set is then defined with the capability to be used as a virtual set.

Each Virtual digital set DN must be permanently call forwarded to the appropriate Q23 hunt group DN. You must connect your digital set on the switch to activate the forwarding. Then you can disconnect the set.

Step 8: Program subscriber sets

Program a key to forward as appropriate the calls to the Voice, Fax & Speech Recognition Q23 hunt group in circumstances of Busy/No Answer. If necessary, program a Message Waiting Indicator. For voice users, publish the Q23 primary hunt group DN (Voice Messaging), and program it into a key on the subscriber set to provide a route for retrieving messages.

Create a secondary DN for all users that needs virtual fax access, and call forward it to the Multimedia messaging hunt group DN. Only users who have a digital set can use virtual fax features.

What's next?

Continue with Section D: "Matra switch," on page 251.

Matra M6550 switch

Introduction

This section describes the switch programming for the M6550 switch.

Before you begin

Before you begin switch programming, you must have the following information ready:

- switch port addresses and DNs for each port (16 per board) on the MPB16-2T board(s) in your CallPilot server
- the DNs for each of the three Q23 hunt groups (at a minimum, there is one Q23 hunt group for each media type on your system: voice, fax, speech recognition)
- the DNs for each phantom DN (one per dialable service)

Step 1: Create/configure analog extensions

First declare an analog board (see "Switch hardware reference" on page 86 for a list of supported analog boards). Use the board's management configuration requirements in the example that follows:

Getting there: MMI > SBL status (XETBLS)

```
Obj. =SBL STATUS                          Action=Display
                                          CCU      =2.
-------------------------------------------------------------------------------------------------------------
SBL family      = BOARDS                  SBL sub-family              =LAX
Board number =6.
-------------------------------------------------------------------------------------------------------------
                    SBL status = IN SERVICE
-------------------------------------------------------------------------------------------------------------
Type of LAX=LAE
                                          Synchronous bus number =24
                                          First occupied TS=768.
-------------------------------------------------------------------------------------------------------------
```

Add one analog extension for each port on the MPB16-2T in your CallPilot server. Declare all the analog extensions as DTMF V MAIL. Use the analog extension configuration requirements in the example below:

Getting there: MMI > Telephone subscribers (XLIGAB)

```
-------------------------------------------------------------------Page=1-
-------------------------------------------------------------------------
Input directory num=YES        Subscriber num.=7010..
Site number          =1..      Answ=NO                    Stat=Idle
CCU  =2.                  Board=6.  Line=0.
Subscriber type=Mono_user      Company=0..                Depart.=0..
                                                          Associated Exts=NO
Extens. Type =Q23  Answr.Dvce

                               Vocal    =....      =.....
Plans :        P_1 =NO    =TO...    P_2=NO   =T2....     P_3 =NO  =*     P_4=NO  =*
(*=Noex.)      P_5 =NO    =*        P_6=NO   =*           P_7 =NO  =*     P_8=NO  =*

-------------------------------------------------------------------Page=2-
----------------------SUSCRIBER CHARACTERISTICS---------------------------
Category          day =0.  nigh=0.                    TL category  :day =0. nigh=0.
Feature Class     =0 Crisis category   =..
Priority Class    =...          Partitioning class      :Outw. =..  Inbound=..
Intercom. Group        =...          =...               Forward. Groups      =...  =..
Predefined forward =NO
Day line                =NO
Night line              =NO
Group subscriber number =7800...                        Round number=.
Teleconference number   =.....       Support Service=Speech
```

Step 2: Designate the MWI DN

Designate one of the configured analog extensions as the Message Waiting Indicator DN. CallPilot uses this line to signal the switch to turn on or turn off MWI indicators as messages are left or retrieved.

There is no switch programming required for this step; note the designated DN. Later in the installation procedure, you will program CallPilot to use it for MWI signals.

ATTENTION

Since this line must be free to transmit MWI On and MWI Off DTMF code, *do not* include it in any Q23 hunt group that processes incoming calls.

Step 3: Create/configure the three Q23 hunt group

Add the three Q23 hunt groups. Each Q23 hunt group contains one or more of the MPB16-2T port DNs. At a minimum, you need one Q23 hunt group for each media type (voice, fax, speech recognition) on your system.

Use the Q23 hunt group configuration requirements in the example that follows:

Getting there: MMI > Telephone subscribers group (XGRABO)

```
Obj. =Group head                          Action =Display
-------------------------------------GROUP HEAD---------------------------

Group subscriber number      =7800..     Company=0..   Depart.=0..
Group type                =Cyclic Group head                    =Normal Extens. Type=Normal
Subscriber type=Mono_user   Pre-answer =NO                      Support Service=Speech
Plans :          P_1 =NO     =TO...     P_2=NO   =T2...        P_3 =NO  =*          P_4=NO  =*
(*=Noex.)        P_5 =NO     =*         P_6=NO   =*             P_7 =NO  =*          P_8=NO  =*

------------------------------------------------------------------------------
------------------------------ CHARACTERISTICS----------------------------
Category          day =40.  Nigh=40.              TL category   :day =40.nigh40.
Feature Class     =40             Crisis category   =..
Priority Class    =..             Partitioning class          :Outw. =..  Inbound=..
Intercom. Group          =...              =...                    Forward. Groups          =...  =...
Predefined forward =Not program.           Dialing                          =.....................
```

```
Obj. Subscribers in group   Action=Display
-----------------------------------GROUP HEAD-------------------------------------
Group Subscriber number     =7800..          Company=0..      Depart.=0.. Page=First
                                             Group head  Group type                = Cyclic

CCU=2.  Subsc. Number=7010..                 Stat=Active      CCU=2. Subsc. Number=7011.. Stat=Activ
CCU=2.  Subsc. Number=7012..                 Stat=Active      CCU=2. Subsc. Number=7013.. Stat=Activ
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
CCU=..  Subsc. Number=. . . .  Stat=???      CCU=.. Subsc. Number=. . .  Stat=???
```

```
Obj. =Features          Action=Display
-------------------------------------------------------------------------------
                        Access type =CLASS NUMBER                FEATURE Class    =40
-------------------------------------------------------------------------Page=2-
Dynamic data protection    =No          Multitaxation       =No
Protect. vs call waiting   =Yes         Line can be grouped =No
Protection vs forwarding   =No          Management station  =No
To ATDC on prot. Call wait. =No         Room Extension      =No
Latest ext. calls logbook  =No          Mobile Registr. from a user      =No
Conference Master          =No
Call by DISA Authorised    =No          Forw. 1st ext. to B.V.  =No
Fow. identity to PSTN      =....        Forw. identity to TL    =...
Modif.to author.base call  =Np          A single call on multiline       =NO
```

ATTENTION

Each port DN can only appear in one hunt group. Each port DN (except the designated MWI DN) must be included in a Q23 hunt group. Otherwise, the port remains idle.

Step 4: Check your DTMF voice mail parameters

Getting there: MMI > Voice mail (XMEVOC)

```
                              VOICE MAIL
Obj.  =Q23 Voice Mail Server                          Action=Display
-------------------------------------------------------------

Type of code=Feature send to voice mail
Convenience =simple Call                              Q23 Code=B21
```

The following is a list of all Q23 messages and the format they use:

Name	FORMAT
Dial Tone	A1
Ring Tone	A2
Answer	A5
Busy Tone	A6
Simple Call	B21CalledDN*Status*Origin*CallingDN*CalledDN
Enquiry Call	B22CalledDN*Status*Origin*CallingDN*CalledDN
External Call Consultation	B41
Internal Call Consultation	B42Mailbox#
Forwarding Request	B51Mailbox#
Voice Mailbox Present	C51Mailbox#
No Voice Mailbox	C52Mailbox#
Messages Present (MWI On)	C1MailboxDn#
No Messages (MWI Off)	C2MailboxDn#

Note: The following DTMF codes are not used with Matra connectivity:

- B70 and C70 (supervision)
- B31, B32, B33 and B34 (conversation recording)
- B62 (time setting answer)
- C61 (time setting request)
- B43 (auto logon)

Note: Code B43 (auto logon code) is treated as a B42. Users must still enter # followed by their password to log on.

Note: A* code cannot be set through this MMI. These codes are set by default on the switch.

Step 5: Configure switch for extended Q23 protocol

Set the configuration parameter number 333 (table 56) to the value 2.

Step 6: Define your primary hunt group DN (used for Voice Messaging)

Getting there: MMI > Services management (XSERVI)

```
Obj. =Dept.                                                    Action=Display
Sub-Object=VOICE MAIL SERVER
---------------------------- SERVICE ACCESS -----------------------------
Template CCU=2.

------------------------------ SERVICE DATA -------------------------------

      1 :                                          Site=1..  CCU      =2.
      2 :                                          Site=...  CCU      =..
      3 :                                          Site=...  CCU      =..
      4 :                                          Site=...  CCU      =..
      5 :                                          Site=...  CCU      =..
      6 :                                          Site=...  CCU      =..
      7 :                                          Site=...  CCU      =..
      8 :                                          Site=...  CCU      =..

Full subscriber number = 7800 .....
---------------------------------------------------------------------------
      Report              =O.K.
```

Step 7: Create each phantom DN

Each phantom DN corresponds to one directly dialable CallPilot service (for example, Express Fax Messaging). Users can dial the phantom DN to access that service.

Note: Do not use phantom DNs for Voice Messaging, Multimedia Messaging, and Speech Recognition services. Users who must access these services can dial the appropriate hunt group DN.

For each phantom DN, use the configuration requirements in the example below:

Getting there: MMI > Telephone subscribers (XLIGAB)

```
------------------------------SUBSCRIBER IDETITY----------------------------

Input directory num=YES          Subscriber num.=7080..
Site number          =1..        Answ=NO                        Stat=Idle
CCU  =2.                 Board=4.          Line=0.
Subscriber type=Mono_user        Company=0                      Depart.=0.
                                                                Associated Exts=NO
Extens. Type =Digital disconnect
                                                                Ext.deconnection authorised =YES

Messages languages  Vocal  =Lang. 1 =FRANCAIS Written=Lang.  1 =Francais
                    P_1 =NO      =TO.....   P_2=NO   =T2....   P_3 =NO  =*          P_4=NO  =*
(*=Noex.)           P_5 =NO      =*         P_6=NO   =*         P_7 =NO  =*          P_8=NO  =*
```

Step 8: Program subscriber sets

Program the subscriber sets for interaction with CallPilot.

Program a key to forward as appropriate the calls to the Voice, Fax & Speech Recognition Q23 hunt group in circumstances of Busy/No Answer. If necessary, program a Message Waiting Indicator. For voice users, publish the Q23 primary hunt group DN (Voice Messaging), and program it into a key on the subscriber set to provide a route for retrieving messages.

Create a secondary DN for all users that need virtual fax access, and call forward it to the Multimedia messaging hunt group DN. Only users who have a digital set can use virtual fax features.

What's next?

Continue with Section D: "Matra switch," on page 251.

Chapter 4

Connecting the server to the switch

In this chapter

Section A: Meridian 1 switch 221

Connecting the MGate card to the MPB16-4 board 222

Connecting the server to the ELAN 226

Section B: MSL-100/DMS-100 switch 229

Overview of installing the SMDI link 230

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Pinouts for cabling to Lucent Definity G3, Mitel, or Rolm switches 249

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The parts to install 252

Connecting the server to the switch 253

Section A: Meridian 1 switch

In this section

Connecting the MGate card to the MPB16-4 board 222
Connecting the server to the ELAN 226

Connecting the MGate card to the MPB16-4 board

Introduction

Only the cabling configurations detailed in this chapter are supported for CallPilot.

Note: The MGate card is not used by the 200i server. If you are installing a 200i server, continue with Chapter 6, "Configuring the server software—common dialog boxes for all switch types," on page 259.



CAUTION

Risk of data loss

Do not use a double cable in place of a single cable in any configuration.

ATTENTION

The CallPilot server must be located within 30 feet or 10 meters of the switch.

Identifying the location of MPB16-4 #1 and #2

In the cabling diagrams, the terms MPB16-4 #1 and MPB16-4 #2 are used to identify the two MPB16-4 boards. Refer to the slot assignment tables in Part 2 of this Installation binder to identify which PCI slot holds MPB16-4 #1 and MPB16-4 #2.

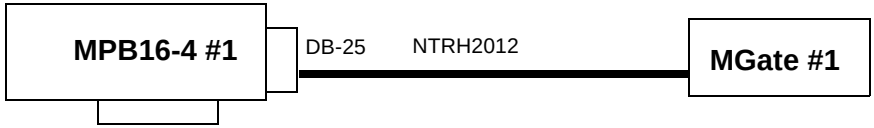
Identifying the location of MGate #1, #2, and #3

In the cabling diagrams, the terms MGate #1, MGate #2, and MGate #3 are used to identify the MGate cards. MGate #1 is in the lowest numbered slot in the switch.

Supported configurations for MPB16-4 board (NTRH20BA)

1 MPB16-4 plus 1 MGate card (32 channels or less)

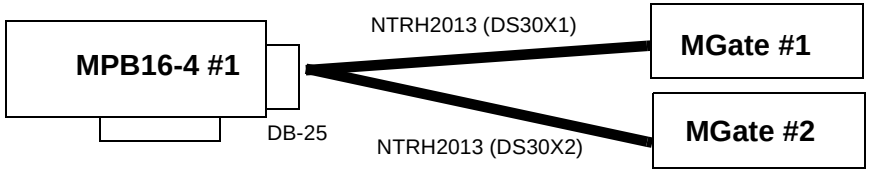
The MGate card must be connected to the MPB16-4 board with a single cable (NTRH2012).



1 MPB16-4 plus 2 MGate cards (48 channels or less)

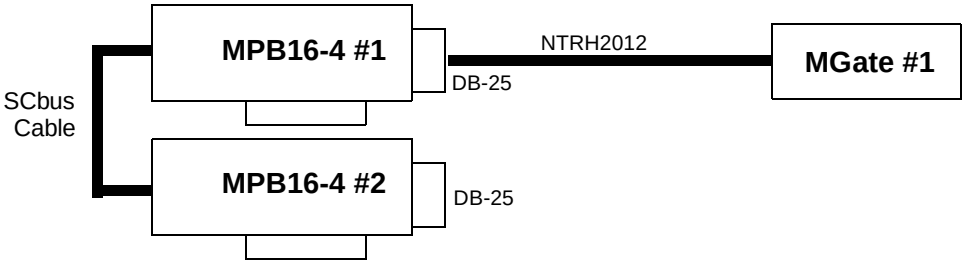
MGate cards are connected to the MPB16-4 with a double cable (NTRH2013).

- Connect the DB-25 connector on the NTRH2013 cable to the MPB16-4.
- Connect the MGate #1 card to the DS30X1 end of the NTRH2013 cable.
- Connect the MGate #2 card to the DS30X2 end of the NTRH2013 cable.



2 MPB16-4 plus 1 MGate card (32 channels or less)

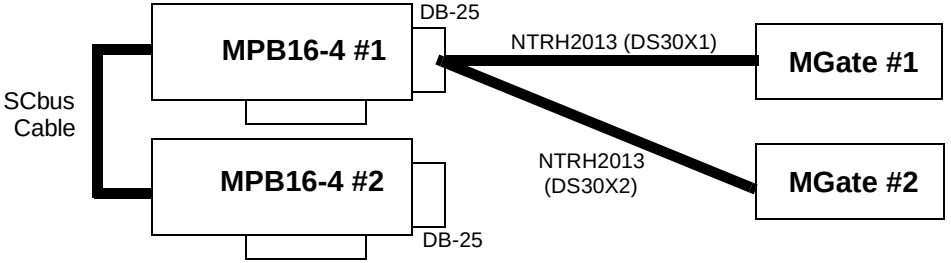
The MGate card is connected to MPB16-4 #1 using the single cable (NTRH2012).



2 MPB16-4 plus 2 MGate cards (64 channels or less)

MGate cards are connected to the MPB16-4 #1 board with a double cable (NTRH2013).

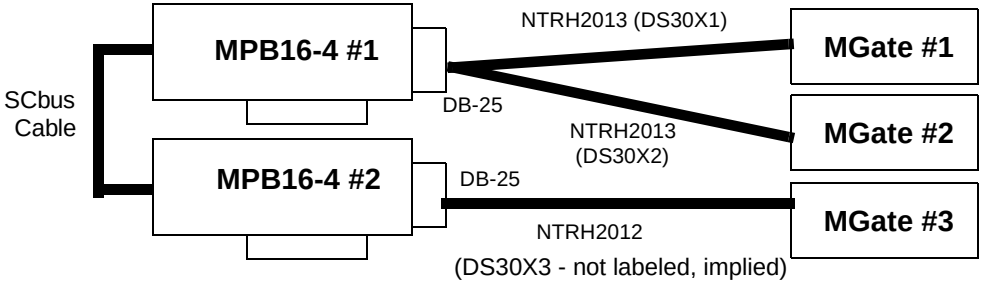
- Connect the DB-25 connector on the NTRH2013 cable to the MPB16-4 #1.
- Connect the MGate #1 card to the DS30X1 end of the NTRH2013 cable.
- Connect the MGate #2 card to the DS30X2 end of the NTRH2013 cable.



2 MPB16-4 plus 3 MGate cards (96 channels or less)

MGate cards are connected to the MPB16-4 boards with one single NTRH2012 cable and one double NTRH2013 cable.

- Connect the DB-25 connector on the NTRH2013 cable to MPB16-4 #1.
- Connect the MGate #1 card to the DS30X1 end of the NTRH2013 cable.
- Connect the MGate #2 card to the DS30X2 end of the NTRH2013 cable.
- Connect the DB-25 connector on the NTRH2012 cable to MPB16-4 #2.
- Connect the MGate #3 card to MPB16-4 #2 with a single NTRH2012 cable. This is actually connection DS30X3, although this designation is implied and not labeled as such.



Connecting the server to the ELAN

Introduction

The CallPilot server must be connected to the switch using the Equipment LAN (ELAN).

Note: For the 200i server, this step is done during the server hardware installation, as described in the *200i Server Hardware Installation* guide.

ATTENTION

Desktop client PCs should not use the ELAN. Each Meridian 1 Option 11C (with up to two expansion cabinets) and Meridian 1 four-tier switch should have its own dedicated ELAN. The ELAN cannot support high volumes or intensive IP traffic originating within the local ELAN or from external interconnected networks.



CAUTION

Risk of reduced system performance

Based on the size and required administrative operations of an external network, you might want to internetwork the ELAN using routers, bridges, or switches.

Direct connection of the ELAN to external networks (such as the CLAN), or improper router, bridge, or switch device selection or configuration can adversely affect the call processing abilities of ELAN-based Meridian switches and CallPilot servers.

As a result, router and switching technologies applied to the ELAN are not recommended. If you require such connections, contact your Nortel Networks support representative.

In addition to its primary purpose of carrying call control information, the ELAN facilitates network-based management by allowing for local, onsite administration of CallPilot servers and Meridian switches using ELAN-based administration client PCs. CallPilot Administrative PCs are typically located on the CLAN if a CLAN is available



CAUTION

Risk of reduced system performance

Since the ELAN carries critical real-time traffic between the CallPilot server and the Meridian switch, bandwidth-intensive OA&M activities on the ELAN are prohibited while CallPilot call processing is in progress. These activities include remote control, large file transfers, backup and restore operations, printing, and other traffic-intensive tasks. Failure to adhere to this guideline adversely affects the call processing abilities of ELAN-based Meridian switches and CallPilot servers.

MAC address

The MAC address is a unique number assigned to network interface cards. In the procedure below, you are asked to record the MAC address from the label on the ELAN card backplate.

To connect the ELAN

1 Use the slot assignments table in the server hardware installation document (Part 2 of this Installation binder) to identify the ELAN card location.

2 Write down the MAC address from the label on the ELAN card backplate. You need the MAC address to identify the card in the CallPilot server Configuration Wizard.

_____. (MAC address for ELAN card)

3 Connect the customer's network cable from the ELAN to the ELAN card.

4 At the switch, connect the ELAN network cable to an MAU (Ethernet) transceiver. Then complete the connection from the transceiver to the switch.



CAUTION

Risk of fire hazard

MAU model NTRH9069 is not suitable for installation in ducts, plenums, or other spaces used for environmental air. Do not install it above a false ceiling or below a raised floor, unless it can be confirmed that these spaces are not used to convey environmental air.

What's next?

If the customer has a CLAN, continue with Chapter 5, "Connecting the server to the CLAN," on page 257. Otherwise, continue with Chapter 6, "Configuring the server software—common dialog boxes for all switch types," on page 259.

Section B: MSL-100/DMS-100 switch

In this section

Overview of installing the SMDI link 230
Installing the SMDI link – direct cable connection 231
Installing the SMDI link – modem connection 233
Installing the T1 links 243

Overview of installing the SMDI link

Introduction

The SMDI link is a data link between the COM 2 port on the CallPilot server and the MPC port on the switch. The SMDI link transports incoming call information and MWI control messages. If the CallPilot server is close to the switch (the criteria is listed in this section), the SMDI link can be a direct cable connection between the server and the switch. For longer distances, a modem connection is used.

IOC shelf versus an IOM (NTFX30AA) -- criteria for a direct cable connection

The criteria for direct cable connection depends on whether the switch has an IOC shelf or an Input Output Module (IOM).

With an IOC shelf, the CallPilot server must be within 15.25 m (50 ft) of the switch for a direct cable connection. For longer distances, a modem connection is required.

With an IOM, the CallPilot server must be within 230 m (750 ft) of the switch for a direct cable connection. For longer distances, a modem connection is required.

What's next?

For a direct cable connection, see "Installing the SMDI link – direct cable connection" on page 231.

For a modem connection, see "Installing the SMDI link – modem connection" on page 233.

Installing the SMDI link – direct cable connection

If the switch has an IOC shelf

The parts to install

- IOC cable (for a newer IOC shelf model, use NT0X96HJ; for an older IOC shelf model, use NT0X96EH)
- DB-9 (female) to DB-25 (female) Null Modem cable (customer supplied)

  Ensure the connectors are of the proper gender, or use a gender changer. The DB-9 end connects to the COM 2 port on CallPilot, and the DB-25 end connects to the IOC cable.

To install the cabling

1. Create the DB-9 to DB-25 Null Modem cable and obtain the proper IOC cables for the IOC shelf model on your switch.
2. Connect the Null Modem cable to the COM 2 port on CallPilot and to the IOC cable.
3. Connect the other end of the IOC cable to the MPC port on the IOC shelf.

If the switch has an IOM (NTFX30AA)

The parts to install

- IOM cable (NT0X96LU)
- Smart Connector (NTFX34AA), which is an adapter and line driver that connects to the IOM cable
- DB-9 (female) to DB-25 (female) Null Modem cable (customer supplied)

  Ensure the connectors are of the proper gender, or use a gender changer. The DB-9 end connects to the COM 2 port on CallPilot, and the DB-25 end connects to the Smart Connector.

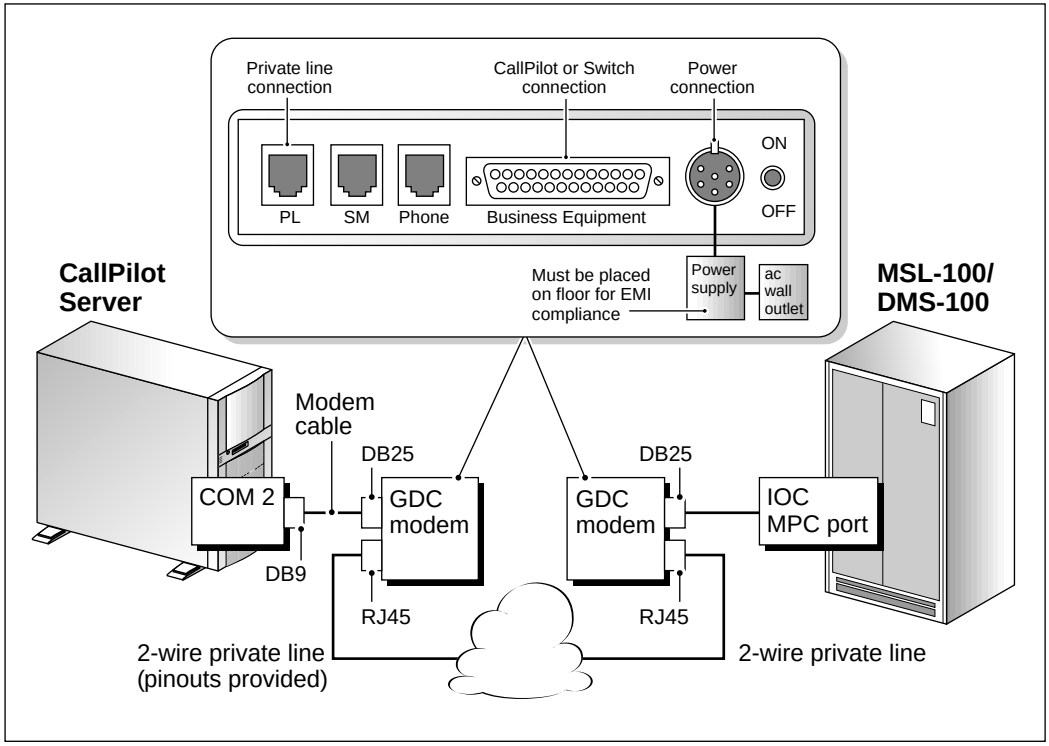
To install the cabling

1. Create the DB-9 to DB-25 Null Modem cable and obtain the other parts to install.
2. Connect the Null Modem cable to the COM 2 port on CallPilot and to the Smart Connector.
3. Connect the IOM cable to the Smart Connector and to the MPC port on the IOM.

Installing the SMDI link – modem connection

Diagram of SMDI link – modem connection

Note: If the switch has an IOM, then an IOM cable and a Smart Connector are used for the connection from the switch to the GDC modem.



G101468

The parts to install

If the switch has an IOC shelf

- two General DataComm VF 28.8 modems (A0620530), which are referred to as GDC modems in this section

- a 2-wire private-line connection between the two modems (this is a customer-supplied cable; pinouts are provided in this section)
- one modem cable (for connection between CallPilot COM 2 port and one GDC modem)
- IOC cable (for a newer IOC shelf model, use NT0X96HJ; for an older IOC shelf model, use NT0X96EH)

If the switch has an IOM (NTFX30AA)

- two General DataComm VF 28.8 modems (A0620530), which are referred to as GDC modems in this section
- a 2-wire private-line connection between the two modems (this is a customer-supplied cable; pinouts are provided in this section)
- one modem cable (for connection between CallPilot COM 2 port and one GDC modem)
- IOM cable (NT0X96LU)
- Smart Connector (NTFX34AA), which is an adapter and line driver that connects to the IOM cable

General DataComm (GDC) modem (A0620530)

The approved modem is the General DataComm 060A010-001 (North American AC version).



Cable pinouts for 2-wire private line

Pin Number	Lead designation
1	Transmit/Receive ring
2	Transmit/Receive tip
3	no connection
4	no connection
5	no connection
6	no connection
7	no connection
8	no connection

To install the SMDI link

Note: In this procedure, the GDC modem that is local to the CallPilot server is referred to as the CallPilot GDC modem. The GDC modem that is local to the MSL-100/DMS-100 is referred to as the MSL-100/DMS-100 GDC modem.

1 Create the 2-wire private line using the pin information in this section. Ensure you have all other cables listed in "The parts to install" on page 233.

2 Program the modems using the instructions in this section.

Note: Nortel Networks recommends that you program the modems before connecting the SMDI link to give you the convenience of programming the modems side-by-side at one time.

3 Connect a modem cable to the COM 2 port on the CallPilot server and to the CallPilot GDC modem.

4 Connect the 2-wire private line to the PL jack (RJ-45 jack) on the CallPilot GDC modem.

5 Complete the cabling of the 2-wire private line from the CallPilot GDC modem to the PL jack on the MSL-100/DMS-100 GDC modem.

6 If the switch has an IOC shelf, then connect the IOC cable to the MSL-100/DMS-100 GDC modem and to the MPC port on the IOC shelf.

If the switch has an IOM, then connect the Smart Connector to the GDC modem. Then connect the IOM cable to the Smart Connector and to the MPC port on the IOM.

7 Plug in the power cords for the modems and wait for the handshaking to complete.

Result: When the modem handshaking has completed, the displays on both modems show the following information:

VF R9600 S9600
PL 2W DTE 9600

To program the modems

Note: The programming steps below apply to both modems in the SMDI link. Instructions indicate when the programming must be different between the two modems.

1 To start programming the set, press Config.

Result: The modem displays the title of the first subgroup, Quick Start.

2 Enter the responses shown in the table below. Use the following methods to step through the prompts and enter values:

- When a title for a subgroup appears, such as Quick Start, press the right-arrow button to go to the next prompt. The subgroup titles are shown in bold in the table below.
- To select the default response, press the right-arrow button to go to the next prompt.
- To select a different response, do the following:
  - Press the down-arrow button to step through the available responses until the response you need appears.
  - Press Enter (an asterisk appears beside the response to show you have selected it).
  - Press the right-arrow button to view the next prompt.

GDC modem programming for SMDI

Prompt	Response
Quick Start (subgroup title)	
Select Config:	Factory Def 0
Answer Org Mode:	Select Forced Answer for one modem, and select Org if No Ring for the other modem. It does not matter which modem has each value.
PL Hdsk Mode:	V32BIS Only
Sn Hdsk Mode:	V32BIS Auto
Max Dce Rate:	9600
Operating Mode:	Async Data
Save Config:	User Profile 0
Network Options (subgroup title)	
Network Select:	PL 2W
Sn Tx Level:	Permissive
PL Tx Level:	-11 dBm
AutoDial Rest:	Disable
PL Look Back:	10 Minutes
PL Down Time:	1 Minute
Terminal Options (subgroup title)	
Dte Speed:	9600

Prompt	Response
Cpm Resp Speed:	AutoBaud Speed
Char Length:	10 7D Par
Parity:	Auto
OverSpeed:	Nominal
Dte Flow Ctl:	Rts/Cts
Terminal Echo:	Enable
Dcd Control:	On After Link
Cts Control:	Cmd On/Rts
Dtr Trans Ctl:	On/Off Idle
Dsr Control:	Normal
Dsr In Analoop:	Off
Transmit Clock:	Select Internal for one modem, and select External for the other modem. It does not matter which modem has each value. The response for this prompt does not have to correspond in any way with the response for the Answer Org Mode prompt that appeared earlier.
Rts/Cts Delay:	0 MSec
Modem Options (subgroup title)	
Rings To Answer:	1
Fall Fwd Bckwd:	Disable
Trellis:	Enable

Prompt	Response
Retrain Options:	Forever
Long Space Disc:	Enable
Speaker Control:	Off in Data
Speaker Volume:	Medium
Make Busy:	Disable
Power Up As:	User Profile 0
Rdl Options:	Disable
Test Timer:	Disable
Dte Test Ctl:	Enable
Dcd Loss To Disc:	01400 MSec
Delay Dtr:	00005 Sec
Cd Resp Time:	00600 MSec
Remote Config:	Enable
Dialer Options (subgroup title)	
Command Format:	AT
Alpha Numeric:	Alpha
Call Progress:	Extd Full Cpm
Response Mode:	Enable
Dtr Dial:	Disable
Dial Type:	DTMF
Pause Time, <:	2 Sec

Prompt	Response
Wait DialTone:	2 Sec
Protocol Options (subgroup title)	
Async Protocol:	Auto Rel Mode
Compression:	Enable
Break Handling:	Tmd Non Exp-Dst
Modem Flow Ctl:	Disable
Ec Data In Hsk:	FB w/FB Chr
Sync Protocol:	Normal Sync
V13 Mode:	BiDirectional
Conn & Link Msgs:	Conn After Link
Modem Info (subgroup title)	
Protocol Select:	Auto Rel Mode
PL Card:	Domestic
Dte Card:	EIA232E
Modem Firmware:	(press right-arrow button to accept the default)
Symbol Rate:	(press right-arrow button to accept the default)
Receive Level:	(press right-arrow button to accept the default)

Prompt	Response
Eqlr Quality:	(press right-arrow button to accept the default)
Save Config:	User Profile 0

3 Press Enter at the Save Config: User Profile 0 prompt. Then press Esc.

Result: The display on one modem shows

```
TRAINING
ANS PL 2W
```

The display on the other modem shows

```
TRAINING
ORG PL 2W
```

4 Repeat this procedure to program the second modem.

5 Continue with the remaining steps in "To install the SMDI link" on page 236.

Installing the T1 links

Introduction

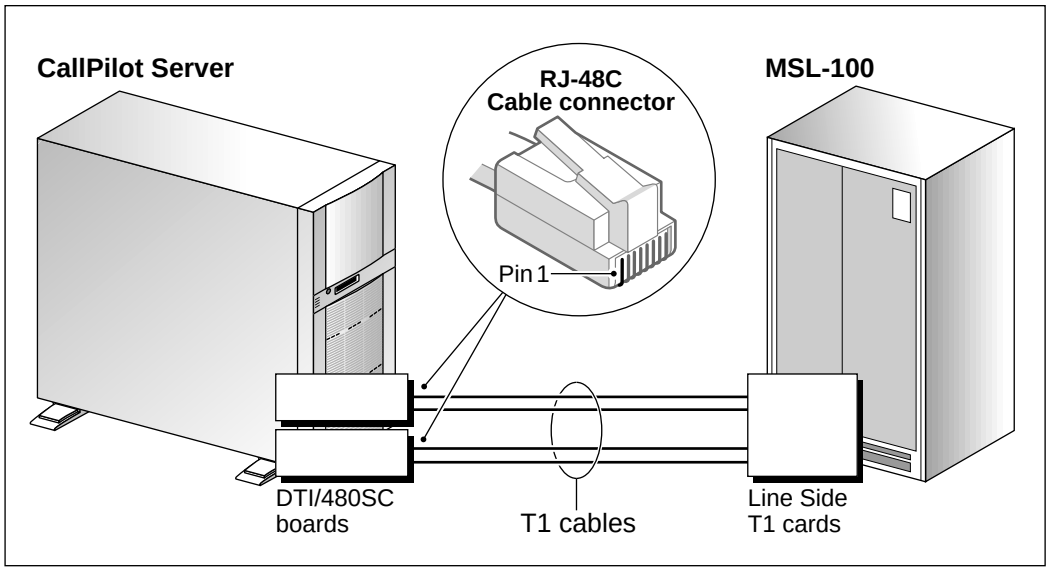
Each T1 link carries 24 channels. Each DTI/480SC board in the CallPilot server supports 2 T1 links (48 T1 channels). CallPilot supports a maximum of 96 channels or 4 T1 links.

MSL-100 versus DMS-100 setup

The MSL-100 switch uses Line Side T1 cards or an external channel bank. The DMS-100 switch requires an external channel bank. For channel bank installation, refer to the documentation that comes with the channel bank.

Diagram of T1 link connection

Note: Each Line Side T1 card supports one T1 link. Each DTI/480SC board supports up to two T1 links. For DMS-100 switches, an external channel bank is required instead of Line Side T1 cards.



G101471

The parts to install

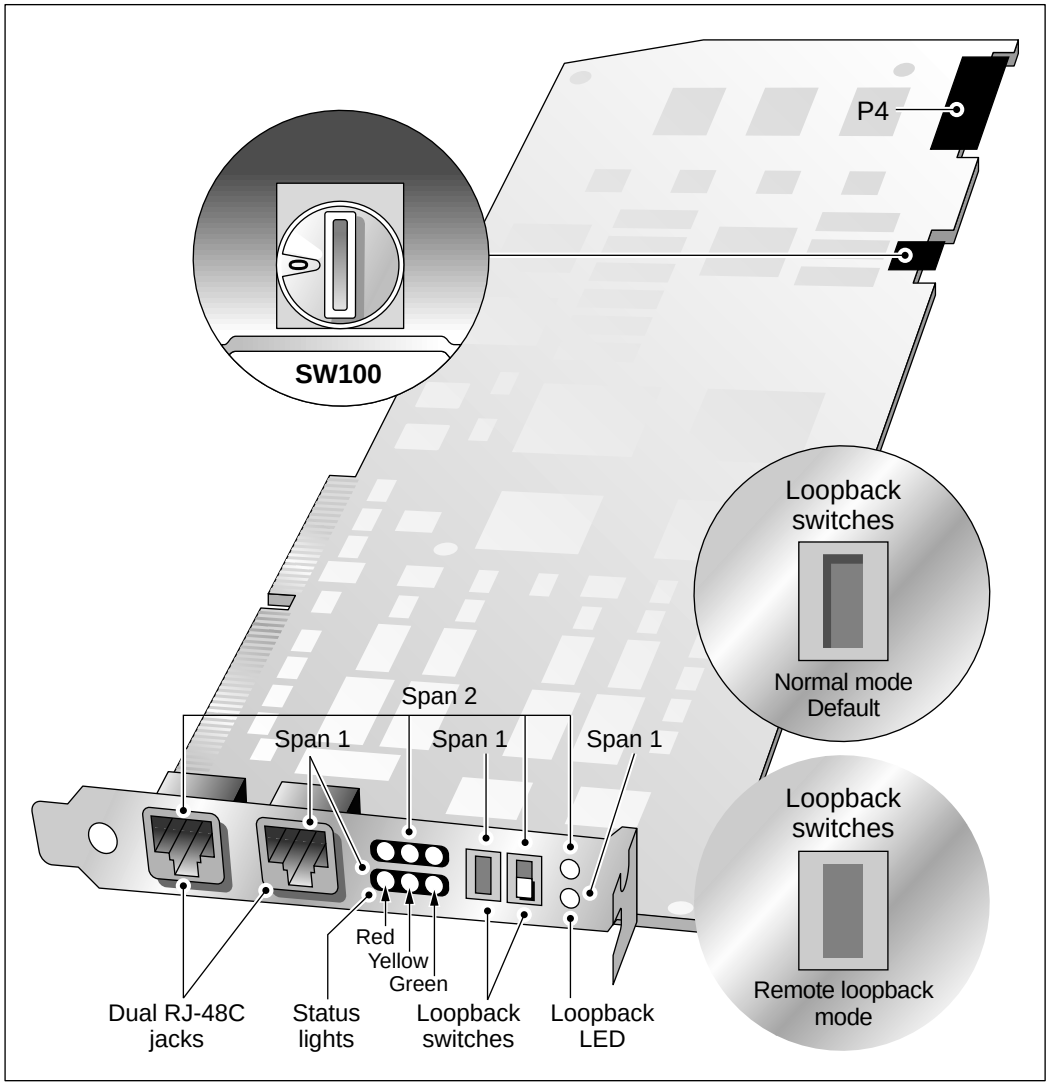
- T1 cable(s) (A0788107)
- cabling from the punch-down board to the switch (customer-supplied; T1 cable pinouts are provided in this section)

T1 cable pinouts

Pin Number	Lead designation
1	Receive ring
2	Receive tip
3	No connect
4	Transmit ring
5	Transmit tip
6	No connect
7	No connect
8	No connect
RJ-45 Metallic Shield	To Cable’s Shield Drain Wire

Note: The Cable’s Shield Drain Wire at the switch end is not connected.

MSL-100/DMS-100 connectivity board in the CallPilot server (Dialogic DTI/480SC board)



G101466

Connecting the server to the switch

Introduction

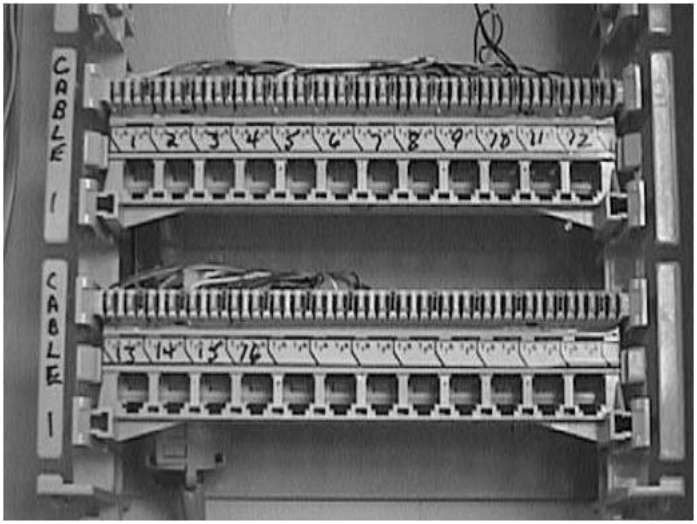
The MPB16-2T (NTRH21CA) connects to the Matra switch using an analog loop start cable (NTRH0914). This cable connects to the MPB16-2T at the rear of the server via a DB-37 connector. The following photograph shows a CallPilot 702t server with two MPB16-2T cards, and two NTRH0914 loop start cables for Matra server connectivity. Refer to Part 2 of this binder for slot assignments.



Note: The NTRH0914 cable must be wired to the Matra switch, as outlined in the following procedure.

To connect the NTRH0914 cable to the switch

The NTRH0914 cable must be hard-wired to a BIX block serving the Matra switch, as shown in the following photograph:



The NTRH0914 must be stripped of its insulation before it is connected to the Matra BIX block. Use the following table as a guide for connecting one NTRH0914 with 16 channels to the BIX block. The predominant color on the wire is listed first and the secondary color appears in parentheses.

Conn	PIN	Color	Signal
P2	21	White (Blue)	T1
P2	2	Blue (White)	R1
P2	22	White (Orange)	T2
P2	3	Orange (White)	R2
P2	23	White (Green)	T3
P2	4	Green (White)	R3
P2	24	White (Brown)	T4

Conn	PIN	Color	Signal
P2	5	Brown (White)	R4
P2	25	White (Grey)	T5
P2	6	Grey (White)	R5
P2	26	Red (Blue)	T6
P2	7	Blue (Red)	R6
P2	27	Red (Orange)	T7
P2	8	Orange (Red)	R7
P2	28	Red (Green)	T8
P2	9	Green (Red)	R8
P2	29	Red (Brown)	T9
P2	10	Brown (Red)	R9
P2	30	Red (Grey)	T10
P2	11	Grey (Red)	R10
P2	31	Black (Blue)	T11
P2	12	Blue (Black)	R11
P2	32	Black (Orange)	T12
P2	13	Orange (Black)	R12
P2	33	Black (Green)	T13
P2	14	Green (Black)	R13
P2	34	Black (Brown)	T14
P2	15	Brown (Black)	R14
P2	35	Black (Grey)	T15

Conn	PIN	Color	Signal
P2	16	Grey (Black)	R15
P2	36	Yellow (Blue)	T16
P2	17	Blue (Yellow)	R16

What's next?

If the customer has a CLAN, continue with Chapter 5, "Connecting the server to the CLAN," on page 257. Otherwise, continue with Chapter 6, "Configuring the server software—common dialog boxes for all switch types," on page 259.

Chapter 5

Connecting the server to the CLAN

In this chapter

Connecting the server to the CLAN 258

Connecting the server to the CLAN

Introduction

This section describes how to connect CallPilot to the CLAN.

Note: For the 200i server, this step is done during the server hardware installation, as described in the *200i Server Hardware Installation* guide.

ATTENTION

The existence of a CLAN is optional for the customer. A CLAN is required to support Desktop Messaging.

MAC address

The MAC address is a unique number assigned to network interface cards. In the procedure below, you are asked to record the MAC address from the label on the CLAN card backplate.

To connect the CLAN

1. Use the slot assignments table in the server hardware installation document (Part 2 of this binder) to identify the CLAN card location.
2. Write down the MAC address from the label on the CLAN card backplate. You need the MAC address to identify the card in the CallPilot server Configuration Wizard.

   _____. (MAC address for CLAN card)
3. Connect the customer's network cable from the CLAN to the CLAN card.

What's next?

Continue with Chapter 6, "Configuring the server software—common dialog boxes for all switch types," on page 259.

Chapter 6

Configuring the server software—common dialog boxes for all switch types

In this chapter

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Using the off-server version of the Configuration Wizard 266

Section B: On-server configuration 271

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Media Allocation 289

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Overview

Introduction

The Configuration Wizard enables you to configure the CallPilot server software. You can rerun the Configuration Wizard to update or review the server configuration.



CAUTION

You must use the Configuration Wizard to change the computer name and to change the baud rate of the SMDI link (for MSL-100/DMS-100 switches). If you use Windows NT methods to change the computer name or the SMDI link, they are not properly updated in the CallPilot software.

Plan your responses to the Configuration Wizard

Ensure you have planned your responses to the Configuration Wizard using the Configuration Wizard worksheets in Part 1of this Installation binder.

To help you plan your responses for the Configuration Wizard, this chapter includes examples of the Configuration Wizard dialog boxes.

Preparing a configuration file before installing CallPilot (off-server method)

The distributor has the option of running an off-server version of the Configuration Wizard on a laptop or common PC and preparing a configuration file prior to the CallPilot installation date.

In the Off-Server Configuration Wizard, some of the dialog boxes do not appear, such as the Computer Name dialog box. However, the distributor can enter information in the dialog boxes that are shown, to prepare most of the configuration ahead of the CallPilot installation date.

You can save the configuration to the PC and then transfer it to a floppy disk or to a network drive for use in the CallPilot installation.

See Section A: “Off-server configuration,” on page 265 for instructions.

Running the Configuration Wizard on the CallPilot server

When you run the Configuration Wizard on a CallPilot server, you have the option to edit the current configuration (that is, configure the server).

You also have the option of loading a configuration file that has been prepared prior to the installation by the distributor. If you load a configuration file, then you still need to step through the Configuration Wizard dialog boxes and complete any dialog boxes that have not been filled in, and make changes as required.

Some default values and some data that is read from the computer appear in the dialog boxes even the first time you run the Configuration Wizard. Some fields might be blank.

See Section B: “On-server configuration,” on page 271 for instructions.

Saving the configuration to a file to complete at a later time

If you do not have all the information you need to configure the CallPilot server, you can save the configuration information to a file. When you have the necessary information, rerun the Configuration Wizard, load the configuration file, and complete the configuration.

Recovering Configuration Wizard changes if there is a system interruption

If a system interruption prevents the Configuration Wizard from finishing or applying the configuration changes, you might be able to recover the entries you made in the Configuration Wizard prior to the system problem. If CallPilot can save a recovery file, then, when you rerun the Configuration Wizard, you are asked if you want to recover your changes. Select Yes and step through the Configuration Wizard.

Running the Configuration Wizard to detect replacement boards

When you replace MPB boards, MPC-8 cards, or boards used for connectivity to the switch, you must rerun the Configuration Wizard to detect and initialize the hardware. You do not need to change any data in the Configuration Wizard to perform this operation, but you do need to apply the configuration as instructed when you complete the Configuration Wizard.

Section A: Off-server configuration

In this section

Using the off-server version of the Configuration Wizard 266

Using the off-server version of the Configuration Wizard

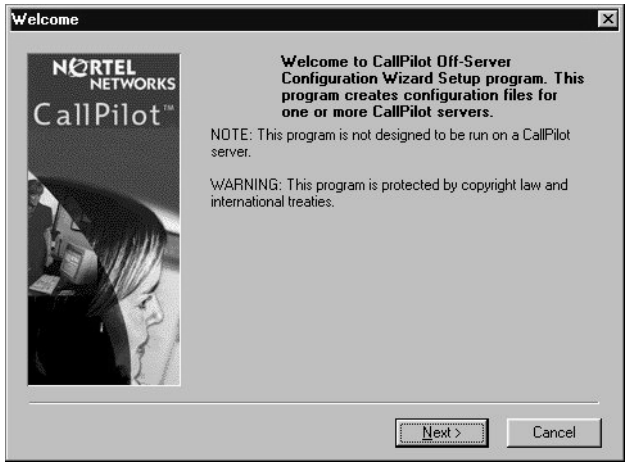
Introduction

The distributor has the option of running an off-server version of the Configuration Wizard on a laptop or common PC and preparing a configuration file ahead of the CallPilot installation date. This section describes how to install the Off-Server Configuration Wizard and how to create a configuration file.

To install the Off-Server Configuration Wizard

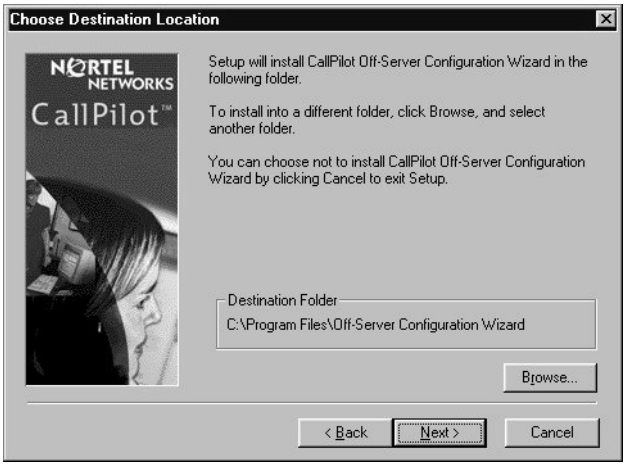
1. Insert the PEP CD.
2. On the PEP CD, open the folder offserver_config_wiz.
3. Double-click setup.exe.

   Result: The Welcome dialog box appears.



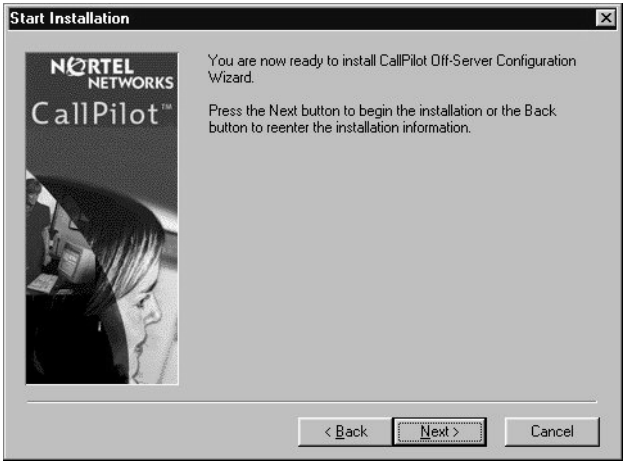
4 Click Next.

Result: The following dialog box appears:



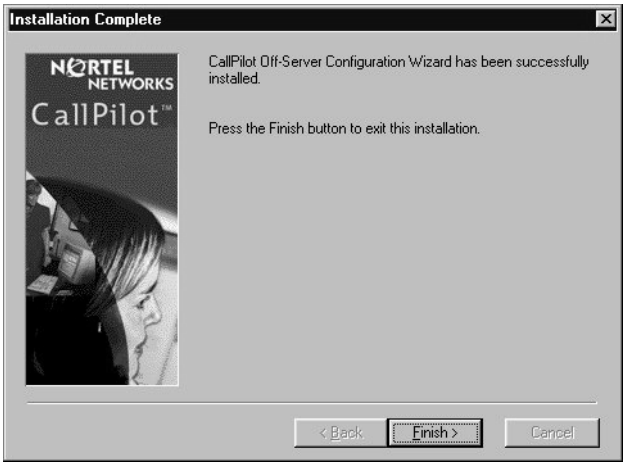
5 Click Next to accept the default or click Browse... to select a different destination folder.

Result: The following dialog box appears:



6 Click Next.

Result: The Off-Server Configuration Wizard is installed. When finished, the following dialog box appears:



7 Click Finish.

Result: The Off-Server Configuration Wizard installation is complete.

To run the Off-Server Configuration Wizard

1 On the PC that has the Off-Server Configuration Wizard, click Start > Programs > CallPilot > Configuration Wizard.

Result: The Off-Server Configuration Wizard launches.

2 Follow the instructions on the dialog boxes. Configuration Wizard dialog box examples and instructions are in Section B: “On-server configuration,” on page 271.

Note: In the Off-Server Configuration Wizard, the following dialog boxes do not appear:

- Computer Name
- Multimedia Hardware
- Media Allocation

- Language Source Directory and other dialog boxes relating to languages installation, reinstallation, or upgrade
- dialog boxes for selecting the ELAN or CLAN network card and entering TCP/IP information

Section B: On-server configuration

In this section

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Logging on to the CallPilot server

ATTENTION

When logging on to the CallPilot server, ensure that the CAPS key is not on. The password is case-sensitive.

To log on to the CallPilot server

1 Ensure that the CallPilot server has started and the Windows NT logon prompt appears.



2 Press Ctrl-Alt-Del.

Result: The logon dialog box appears.



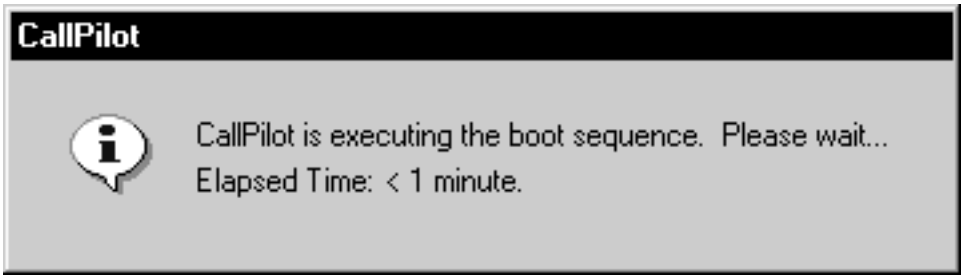
3 Type **Administrator** as the user ID.

4 Type the default password **abc123** (or the current Administrator password if it has been changed already).

Note: You can choose to log on with a different user ID that has local administrative privileges. After you complete the Configuration Wizard, you are instructed to change the default passwords in Chapter 8, "Changing the CallPilot server Windows NT default passwords."

5 Click OK.

Note: If the Configuration Wizard has previously been run on the CallPilot server, the following dialog box might appear:



Other dialog boxes might also appear that state if CallPilot is ready to accept calls. These dialog boxes are part of the CallPilot system ready indicator feature and are not applicable until you have run the Configuration Wizard.

Ignore these dialog boxes and continue with "Running the Configuration Wizard" on page 274. See "Checking that CallPilot is ready to accept calls (System Ready Indicator)" on page 400 for more information about the system ready indicator dialog boxes.

Running the Configuration Wizard

Requirements

- CallPilot language CD, if you are installing, adding, or upgrading languages
- completed Configuration Wizard worksheets from Part 1 of this binder

To run the Configuration Wizard

1. Log on to CallPilot as Administrator (or any account that has administrative privileges).
2. Close all applications except for pcANYWHERE32, acdproxy, Sybase, and the MASTraceWindow.
3. Double-click the Configuration Wizard shortcut on the desktop, or select Start > Programs > CallPilot > Configuration Wizard.

   Result: The following dialog box appears:



4 Click Next.

5 Follow the instructions on the dialog boxes and use the information from your Configuration Wizard worksheets.

Note: The remainder of this chapter describes the dialog boxes that are common to all switch types. When you reach the end of this chapter, continue with Chapter 7, "Configuring the server software—switch-specific dialog boxes," which describes the switch-specific dialog boxes that appear near the end of the Configuration Wizard.

Configuration Mode

Dialog box example



Configuration Mode options

- Edit the current configuration

  This option applies only to on-server configuration. Select this option if you did not receive or prepare a configuration file.

- Create a new configuration file

  This option applies only to off-server configuration. Select this option to prepare a new configuration file.

- Load an existing configuration file

  This option applies to on-server and off-server configuration. Select this option to load a previously prepared configuration file.

See the procedures on page 277 for detailed instructions.

To edit the current configuration

1. Select Edit the current configuration.
2. Click Next to step through the Configuration Wizard to configure the CallPilot server.

To create a new configuration file

Note: This option applies only to off-server configuration and is grayed out when you run the Configuration Wizard on the CallPilot server.

1. Select Create a new configuration file.
2. Click Next to step through the Configuration Wizard. Since this is an off-server configuration, some dialog boxes do not appear.

To load an existing configuration file

1. If the prepared configuration file is on a floppy disk, then insert the floppy disk.
2. Select Load an existing configuration file.
3. Click Next.

   Result: A Browse dialog box appears. By default, the Browse dialog box shows only files with .cfg file type.
4. Locate the configuration file, select it, and click Open.

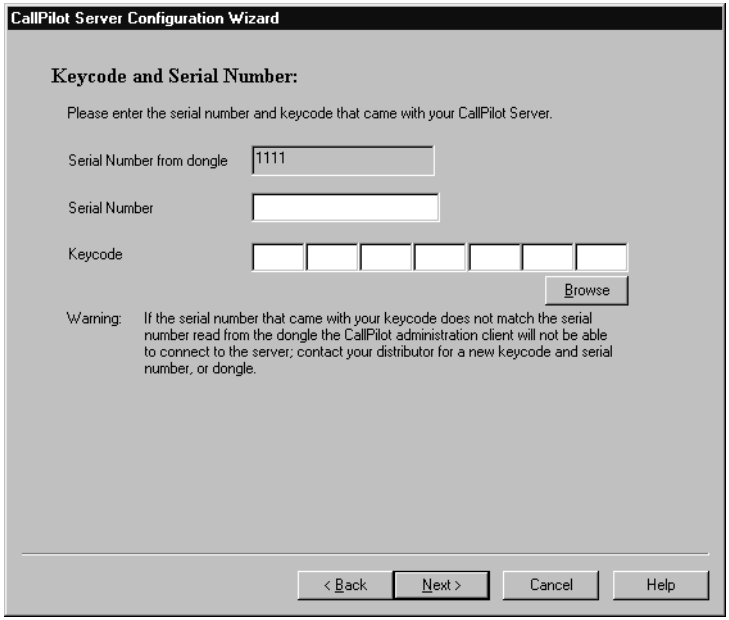
   Note: If the configuration file is not of file type .cfg, then use the drop-down menu to change the “Files of type” setting in the Browse dialog box to All files.
5. Click Next to step through the Configuration Wizard dialog boxes (shown on the following pages). Fill in values for dialog boxes not completed in the prepared configuration file and make changes as required.

Keycode and Serial Number

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.

Note: The Serial Number from dongle box is prefilled with data read from the software feature key.



To enter the keycode and serial number

Note: The keycode and serial number are printed on a small form that also lists the features ordered for this server. This form is packaged with the CallPilot Server CD.

Note: For upgrades, the keycode is prefilled with the value entered earlier in the upgrade procedure. Verify that the keycode is correct.

1 Enter the serial number you received with the CallPilot keycode in the Serial Number box. This number should match the prefilled Serial Number from dongle box.

Notes:

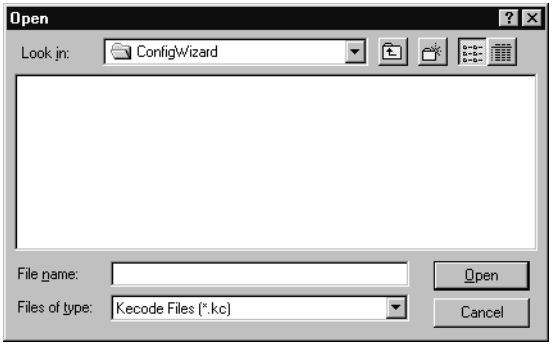
- If the serial number contains letters, use lowercase.
- If the prefilled serial number is different from the serial number that came with the keycode, contact your Nortel Networks customer support representative and request a valid keycode and serial number or a new software feature key.
- To complete the installation, if the prefilled serial number is different from the serial number that came with the keycode, enter the serial number that came with the keycode. After the installation is complete, you can use the voice mail system, but you cannot log on to CallPilot through the administrative PC to perform system or maintenance activities. When you receive a new software feature key or a new serial number, rerun the Configuration Wizard to fix this problem.

2 Enter the keycode and click Next, or follow these substeps if you have a prepared keycode file on a floppy disk:

a. Insert the floppy disk that has the keycode file.

b. Click Browse.

Result: The following dialog box appears:



c. Locate the keycode file, select it, and click Open.

d. Click Next.

To prepare a keycode file

1 Create a text file (for example, use Notepad) that contains only the keycode (not the serial number). The keycode must have a space between each block of four characters, as in the following example:

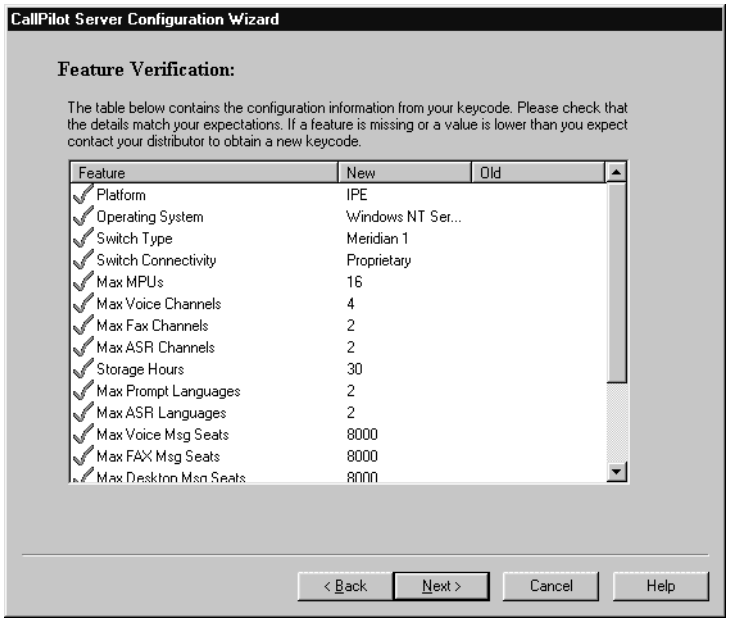
Example: 1234 5678 ABCD EFGH IJKL MNOP QRST

2 Save the file with a .kc extension.

Feature Verification

Dialog box example

The information that appears in this dialog box depends on the features that were purchased.



To verify that the list of features match what was purchased

1. Verify that the features listed in the New column match the features purchased. If the features do not match what was purchased, contact your distributor.

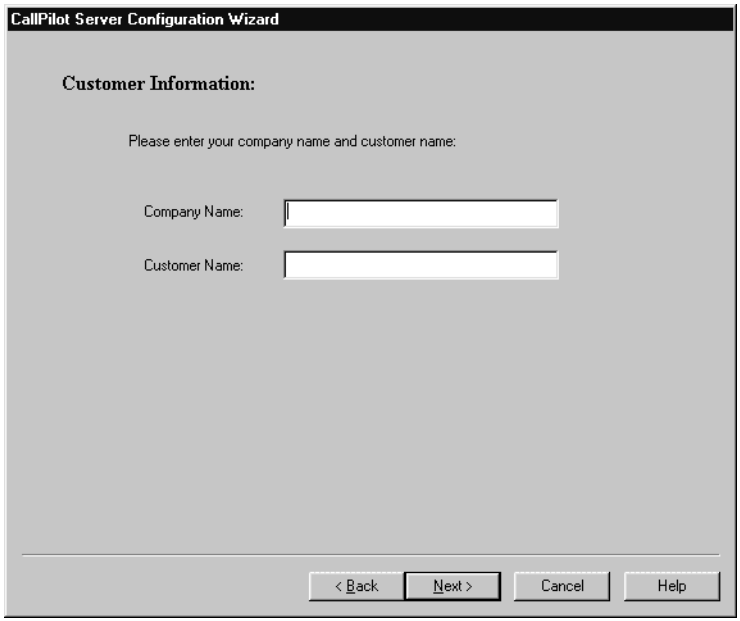
   Note: The New column lists the features indicated by the new keycode. The Old column shows what features are present based on the previous keycode or the last time the Configuration Wizard was run. If the CallPilot server has not been configured previously, then the Old column is blank. If you are rerunning the Configuration Wizard without entering a new keycode, the New and Old columns show identical features.

2. Click Next.

Customer Information

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.



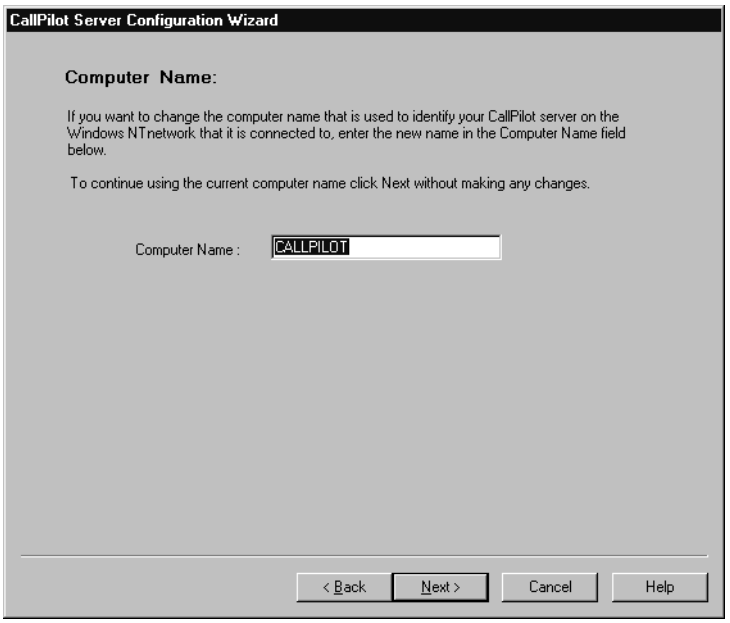
To add customer information

1. Enter the Company Name and Customer Name. This data is for information only and does not impact the CallPilot installation.
2. Click Next.

Computer Name

Dialog box example

This dialog box is prefilled with the current computer name.



CAUTION

Risk of incorrect computer name configuration

Do not use the Windows NT network control panel to change the computer name. It does not properly update the computer name in the CallPilot software. The Configuration Wizard makes the appropriate computer name updates for CallPilot as well as for Windows NT.

To change the computer name

1 Enter a new computer name if the customer has requested a new computer name.

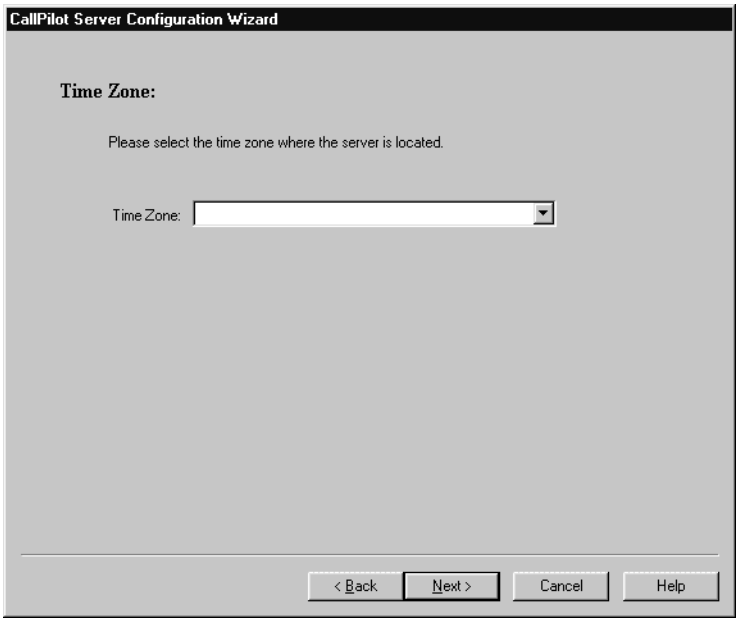
ATTENTION

If you change the computer name, you must restart the server when prompted at the end of the Configuration Wizard before attempting to do any additional server configuration. If you do not restart, then any additional server configuration might not be applied properly.

2 Click Next.

Time Zone

Dialog box example



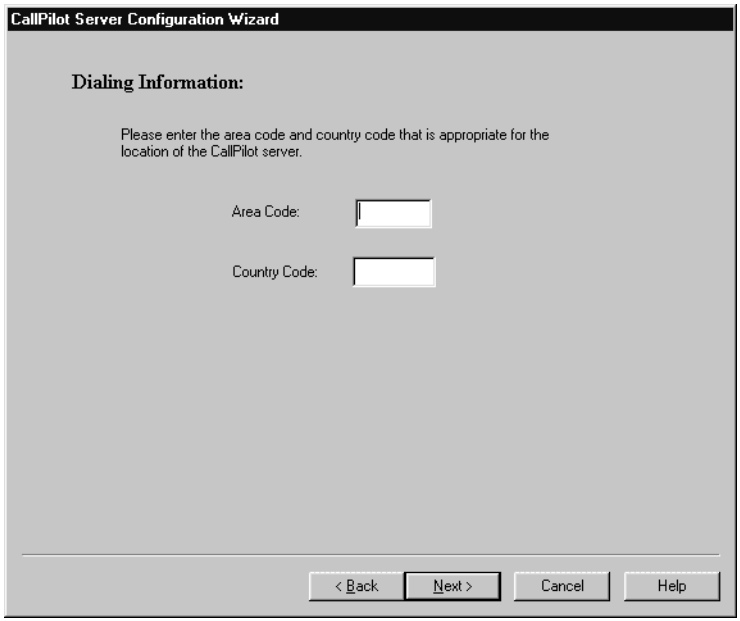
To set the time zone

1. Select the time zone for your area from the drop-down menu.
2. Click Next.

Dialing Information

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.



To enter dialing information

Enter the area and country codes, or click Next to skip this dialog box.

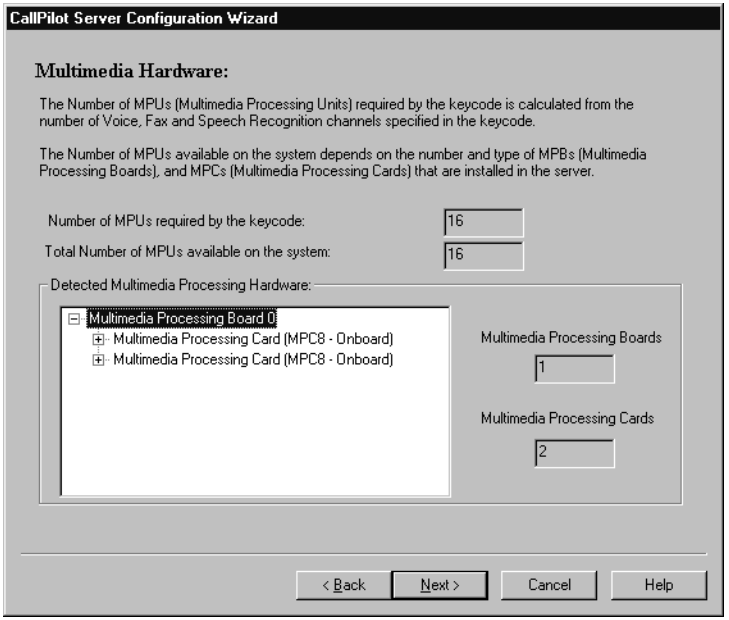
Note: The area and country codes are optional. If you do not enter them when running the Configuration Wizard, then the system administrator can enter them later from the Administrative PC.

Multimedia Hardware

Dialog box example

This dialog box enables you to verify that the CallPilot server has the hardware to support the number of voice, fax, and speech recognition channels specified in the keycode.

Note: This dialog box is read-only.



To check the multimedia hardware

1 Verify that the Total Number of MPUs available on the system is equal to or greater than the Number of MPUs required by the keycode. Also, verify that the multimedia hardware detected matches what was installed in the server according to the customer order for the server.

Note: If some of the required or expected multimedia hardware is not shown in this dialog box, then the missing hardware is either not installed or is faulty. Faulty multimedia hardware is not detected by the Configuration Wizard and not listed in this dialog box.

2 Do one of the following substeps:

a. If the required multimedia hardware is present, click Next.

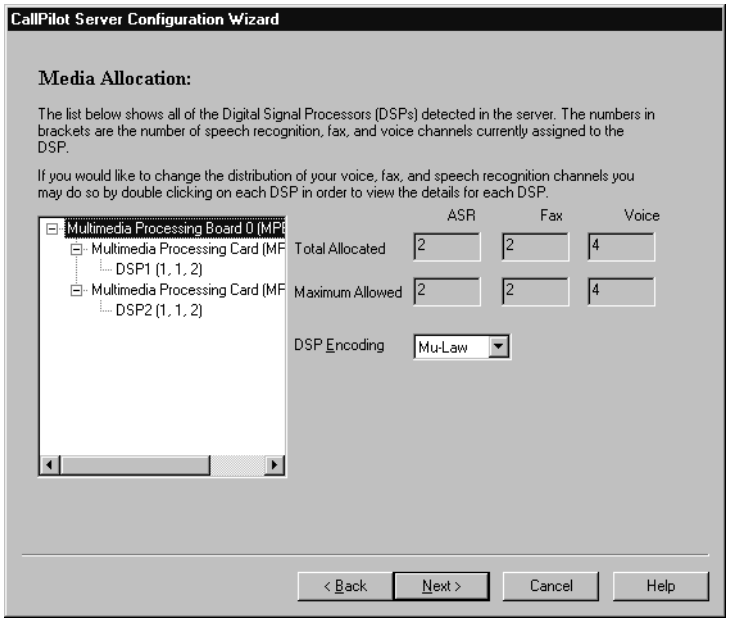
b. If some multimedia hardware is missing or faulty, you can still continue with the installation and configuration to get a working system until you receive the replacement hardware. Configure only the number of DNs that match the number of physical channels present. When the additional or replacement hardware is installed, rerun the Configuration Wizard to configure the additional channels.

Media Allocation

Dialog box example

ATTENTION

By default, a new CallPilot system has the speech recognition, fax, and voice channels spread out as evenly as possible over all available hardware. However, if there is a hardware change or keycode change that affects the number of channels or the distribution of speech recognition, fax, and voice channels, then you need to manually allocate the additional channels.



To select the appropriate DSP Encoding type

Select the appropriate option for your region. For example, select Mu-law for North America. Select A-law for Europe and the Caribbean area. Use the drop-down menu for the DSP Encoding box to make your selection.

To view or change the allocation of speech recognition, fax, and voice channels

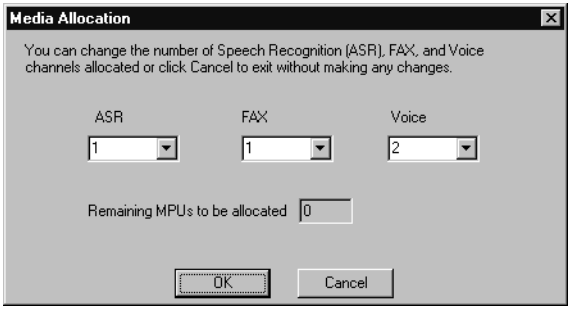
1 Click the + signs in the list of hardware to see more detail about the allocation of DSPs.

The MPC-8 cards are labeled as DSP1, DSP2, and so on. The allocation of speech recognition, fax, and voice channels on an MPC-8 card is shown as follows:

Example: DSP1 (1,1,2): The first number is the number of speech recognition channels, the second number is the number of fax channels, and the third number is the number of voice channels.

2 Identify a DSP where you want to change the channel allocation, and double-click on the DSP.

Result: The following dialog box appears for viewing or changing the media allocation for the selected DSP:



3 Change the channel allocation and click OK.

Note: Each DSP has eight MPUs. If you select all voice, the DSP supports up to eight channels. If you select some fax or speech recognition channels, the DSP supports less than eight channels. The following table shows how many MPUs are required for speech recognition, fax, and voice channels:

Channel type	Description	# of MPUs
Voice	One voice channel requires one MPU.	1 MPU
Fax	Fax needs twice as much processing power as voice-only media and, therefore, requires two MPUs.	2 MPUs

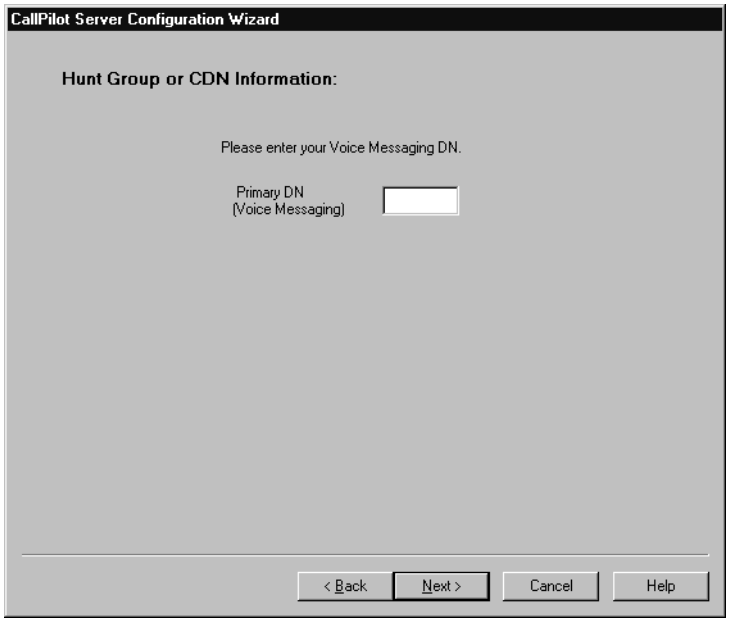
Channel type	Description	# of MPUs
ASR (speech recognition)	Speech-recognition needs four times as much processing power as voice-only media and, therefore, requires four MPUs.	4 MPUs

4 Click Next.

Voice Messaging Hunt Group or CDN

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.

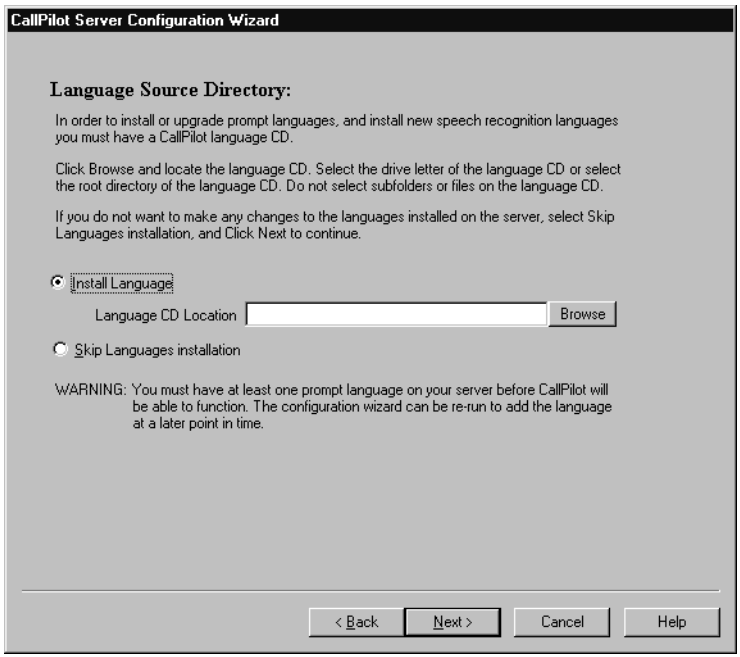


To enter the primary DN for Voice Messaging

Enter the primary DN for Voice Messaging and click Next. The DN you enter here is the DN that is used to test CallPilot after the installation. This test is described in "Verifying that CallPilot can receive calls" on page 407.

Language Source Directory and languages installation

Dialog box example



Select Install Language to do one or more of the following:

- Reinstall or upgrade languages to ensure you have the latest version.
- Install new languages.
- Select the primary and secondary language.

Each language adds approximately 10 minutes to the time required to apply changes at the end of the Configuration Wizard.

About primary and secondary languages

The primary language is the language used by default for system prompts and system greetings. If a secondary language is installed, users can request that the secondary language be used for their mailboxes. For more information about the administration of languages, refer to the *Administrator's Guide*.

Requirements

If you want to install, add, or upgrade languages, you must have the CallPilot Language CD.

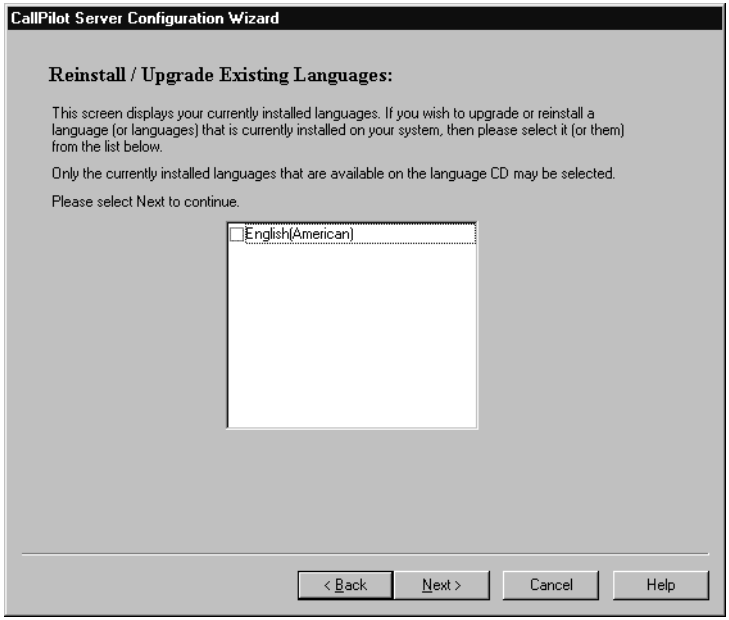
To reinstall, upgrade, or add languages

1. Insert the CallPilot Language CD.
2. Select Install Language.
3. Click Browse and select the CD-ROM drive.

   Note: Select the root level of the CD-ROM. Do not select subfolders or files on the CD. For example, if the CD-ROM is drive Z, just select Z.

4 Click Next.

Result: If languages are already installed, the following dialog box appears:



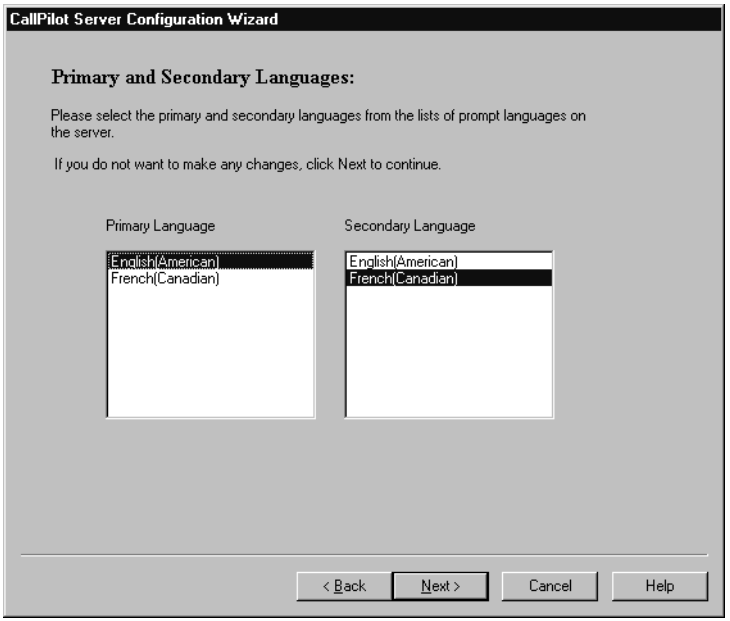
5 If you are reinstalling or upgrading a language, then select it and click Next. To skip the dialog box, click Next without selecting anything.

Result: The following dialog box appears:



6 If you are adding a language, then select it and click Next. To skip the dialog box, click Next without selecting anything.

Result: The following dialog box appears:



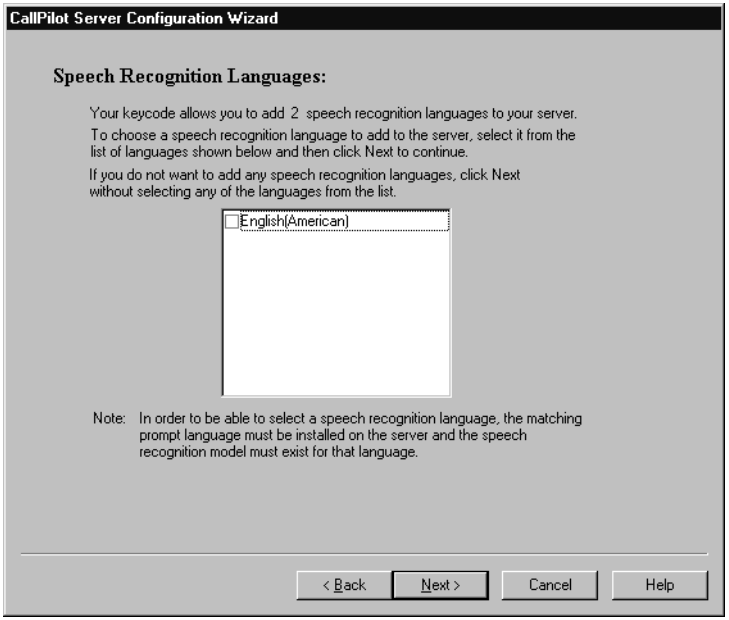
Note: If you have only one language, then it is the primary language by default. If you have two or more languages, then all languages are listed in both the Primary and Secondary columns.

7 In the Primary Language column, select the language you want to be primary.

8 In the Secondary Language column, select the language you want to be secondary.

9 Click Next.

Result: The following dialog box appears:



10 If you are adding a speech recognition language, then select it and click Next. To skip the dialog box, click Next without selecting anything.

Result: The language installation dialog boxes are completed.

CallPilot Networking

Types of CallPilot networking

The networking keycode enables the following solutions. Identify which networking solution is required by the customer:

- AMIS Networking
- Enterprise Networking
- VPIM Networking

AMIS Networking

AMIS Networking allows users to exchange messages with users of any voice messaging system that supports the AMIS protocol. This protocol is an industry standard protocol for exchanging voice messages.

Enterprise Networking

Enterprise Networking is Nortel Networks' proprietary analog networking protocol for voice messages.

It can be used to network with other CallPilot systems or existing Meridian Mail systems supporting Enterprise Networking.

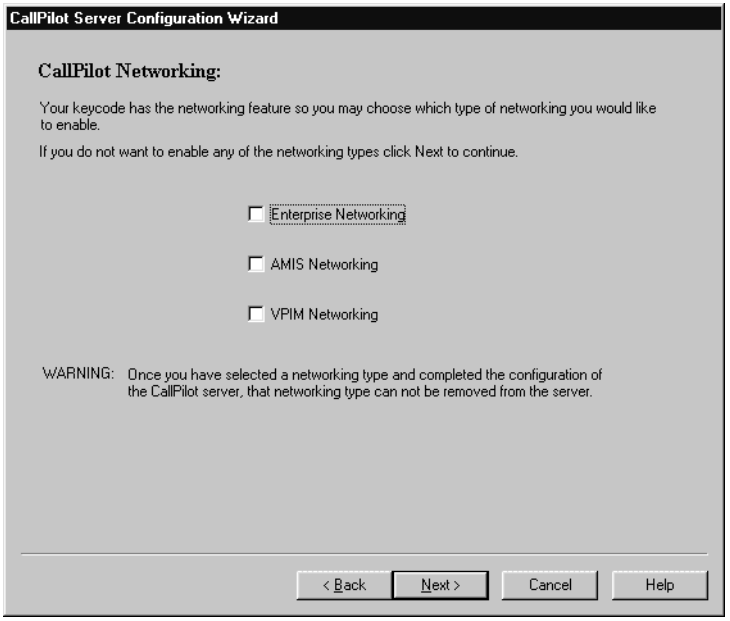
VPIM Networking

VPIM Networking provides CallPilot with the capability to exchange multimedia messages with a standard data communications network. Messages can contain voice, fax, or both.

VPIM Networking can be used to network with other CallPilot systems, existing Meridian Mail Net Gateway (MMNG) systems, Norstar, or other third-party VPIM-compliant systems.

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.



ATTENTION

Once a type of networking is installed, it cannot be uninstalled. Therefore, select only the networking solution or solutions that are required. You can add additional networking solutions at any time by rerunning the Configuration Wizard. However, if you rerun the Configuration Wizard and make changes, you must restart the CallPilot server.

To select a networking type

1. Select the networking type requested by the customer.
2. Click Next.

Adding switch information

Locating the instructions for your switch

The remaining Configuration Wizard dialog boxes are specific to the switch type. Go to the section for your switch as shown in the table below:

Switch	Next step
Meridian 1	See Section A: “Meridian 1 switch,” on page 305.
MSL-100 or DMS-100	See Section B: “MSL-100/DMS-100 switch,” on page 321.
Lucent, Mitel, or Rolm	See Section C: “Lucent, Mitel, or Rolm switch,” on page 337.
Matra	See Section D: “Matra switch,” on page 355.

Chapter 7

Configuring the server software—switch-specific dialog boxes

In this chapter

Section A: Meridian 1 switch 305
Select the Equipment LAN NIC 306
Equipment LAN TCP/IP information 308
Meridian 1 Switch Information 309
Meridian 1 TN Configuration 310
Select the Customer LAN NIC 314
Customer LAN TCP/IP information 316
Ready to Configure the Server 317
Section B: MSL-100/DMS-100 switch 321
SMDI Link 322
Configure T1 link properties 325
Configure T1 channel properties 328
Select the Customer LAN NIC 332
Customer LAN TCP/IP information 333
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Section C: Lucent, Mitel, or Rolm switch 337
Call and Line information 338
Message Waiting Indicator information 343

Select the Customer LAN NIC 349
Customer LAN TCP/IP information 350
Ready to Configure the Server 351
Section D: Matra switch 355
Configure analog link properties 356
Configure Matra channel properties 359
Message Waiting Indicator information 362
Select the Customer LAN NIC 366
Customer LAN TCP/IP information 367
Ready to Configure the Server 368

Section A: Meridian 1 switch

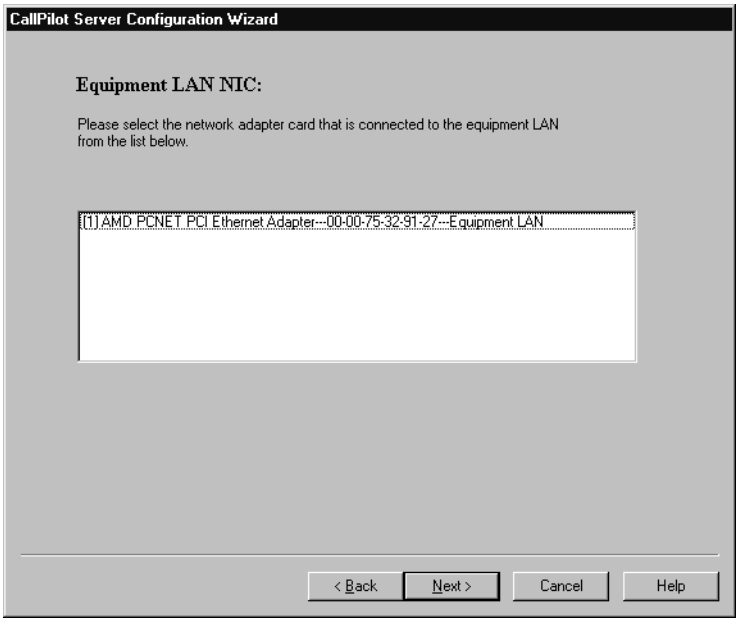
In this section

Select the Equipment LAN NIC 306
Equipment LAN TCP/IP information 308
Meridian 1 Switch Information 309
Meridian 1 TN Configuration 310
Select the Customer LAN NIC 314
Customer LAN TCP/IP information 316
Ready to Configure the Server 317

Select the Equipment LAN NIC

Dialog box example

This dialog box shows the network cards that are currently installed in the CallPilot server.



To select the ELAN card for tower or rackmount servers

1 Use the MAC address information (the series of numbers beside the network card name) in the dialog box to determine which card you should select for the ELAN.

Note: For tower and rackmount servers, the MAC address label on the network card is visible through the backplane of the CallPilot server.

Note: The next time you run the Configuration Wizard, the card you selected as the ELAN card is identified as “Equipment LAN” in this dialog box.

2 Click Next.

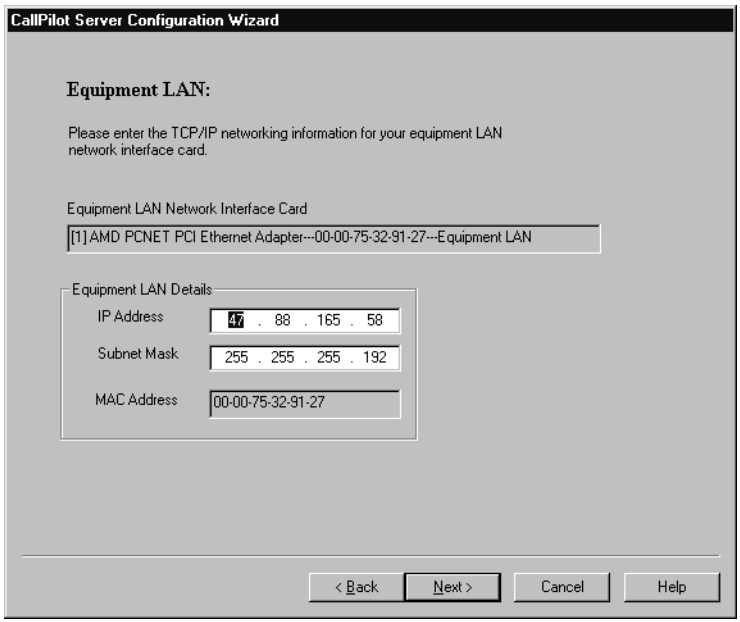
To select the ELAN card for the 200i or 201i server

Select the card labeled “Equipment LAN.” The Configuration Wizard identifies the ELAN card as the integrated network card on the motherboard and displays the text “Equipment LAN” beside the network card name and MAC address.

Equipment LAN TCP/IP information

Dialog box example

The MAC address is prefilled and identifies the network card you selected.



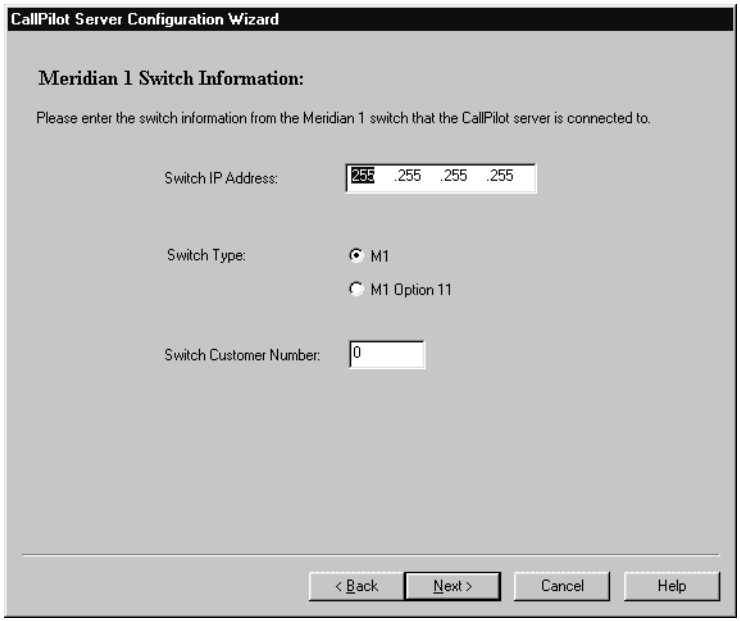
To enter the CallPilot server ELAN TCP/IP information

1. Enter the IP Address and Subnet Mask that were planned for this CallPilot server in the Configuration Wizard worksheets.
2. Click Next.

Meridian 1 Switch Information

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.



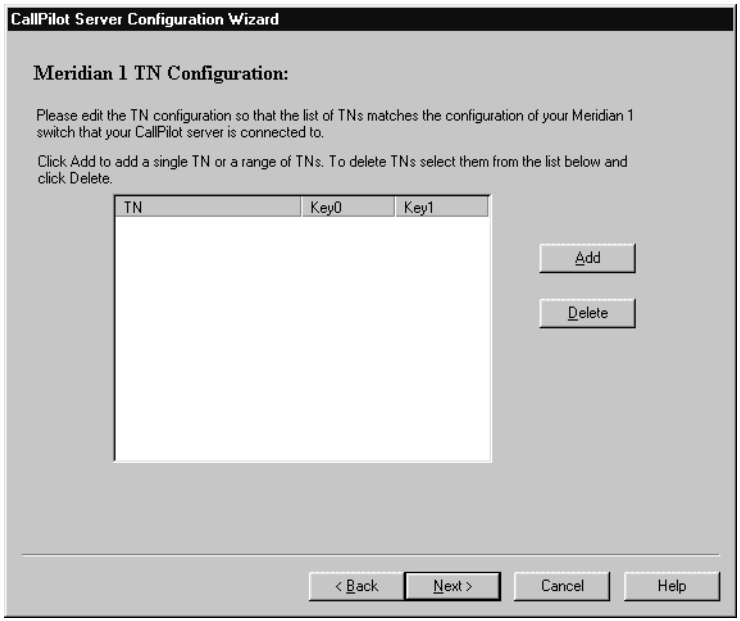
To enter the Meridian 1 switch information

1. Enter the ELAN IP address of the switch. This is the same IP address used in the switch programming. See "Configuring switch IP addresses and enabling the Ethernet interface" on page 97.
2. For the switch type, select M1 for all Meridian 1 switches except for the Option 11.
3. In the Switch Customer box, enter the customer number on the switch to which this CallPilot server belongs. The default is 0.
4. Click Next.

Meridian 1 TN Configuration

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.



Adding a range of TNs

To save time, you can add a range of TNs instead of adding them one at a time if you have consecutively numbered TNs programmed for CallPilot.

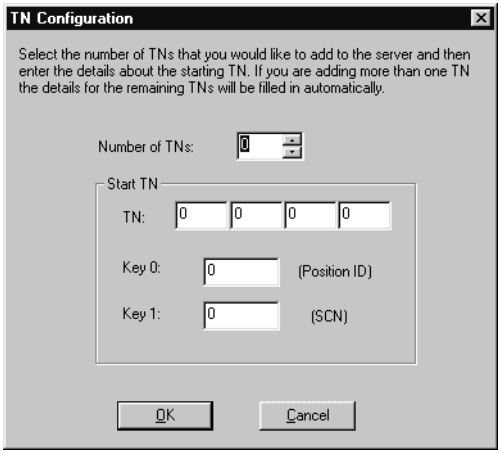
For example, if the first consecutive TN is 1.0.0.0 and you specify 20 TNs in the range, the last TN that is added to the TN Table is 1.0.0.19.

To add TN information

Note: The number of TNs configured on CallPilot cannot exceed the number of channels specified by the keycode.

1 To add TNs, click Add.

Result: The following dialog box appears:



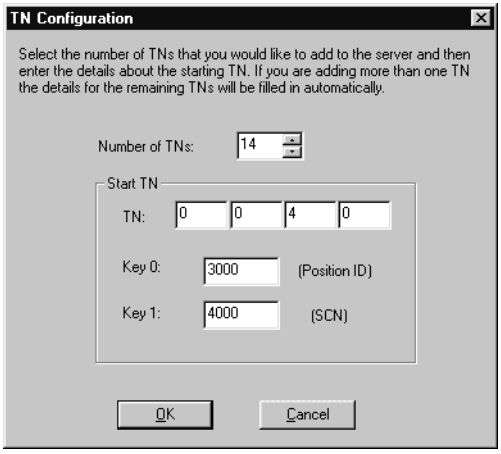
2 Fill in the TN information. For field descriptions, see "TN configuration field descriptions" on page 313.

To add a range of TNs, do the following:

a. Enter the number of TNs in the range.

b. Enter the TN, Key 0, and Key 1 for the first TN in the range.

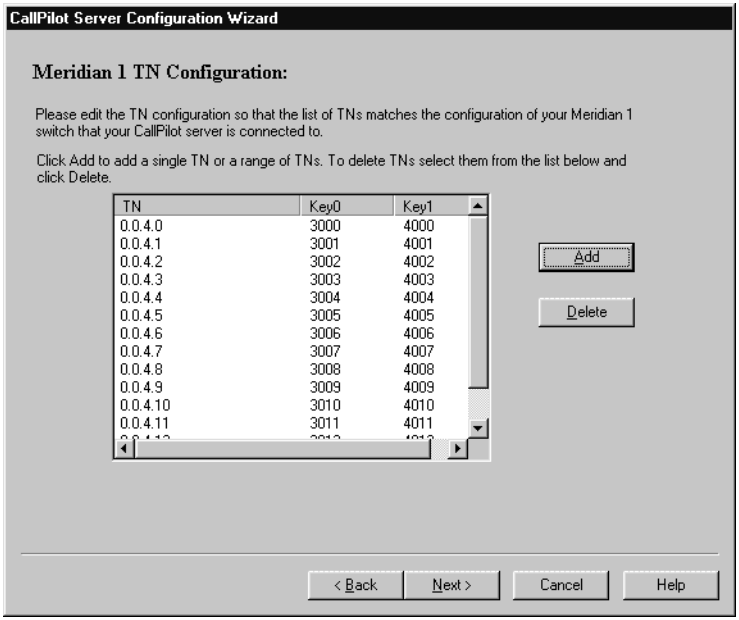
Example:



Note: For Option 11 switches, the first two fields for the TN are grayed out and prefilled.

3 Click OK.

Result: The Meridian 1 TN Configuration dialog box appears with the added data:



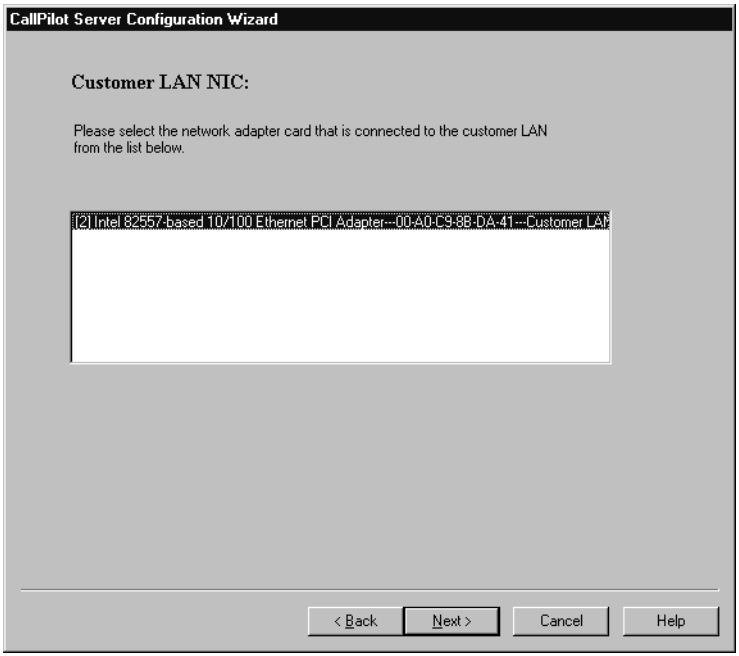
4 Click Next.

TN configuration field descriptions

Boxes and Columns	Description
Number of TNs	Identifies the number of TNs in a range.
TN	Represents the TN that was configured on the switch for CallPilot.
Key0	Identifies the Position ID of the agent for incoming call routing. A Key 0 is defined for each TN on the switch.
Key1	Identifies the DN that represents channels for outgoing calls. A Key 1 is defined for each TN on the switch.

Select the Customer LAN NIC

Dialog box example



To select the CLAN card for tower or rackmount servers

1 Use the MAC address information (the series of numbers beside the network card name) in the dialog box to determine which card you should select for the CLAN.

Note: For tower and rackmount servers, the MAC address label on the network card is visible through the backplane of the CallPilot server.

Note: The next time you run the Configuration Wizard, the card you selected as the CLAN card is identified as “Customer LAN” in this dialog box.

2 Click Next.

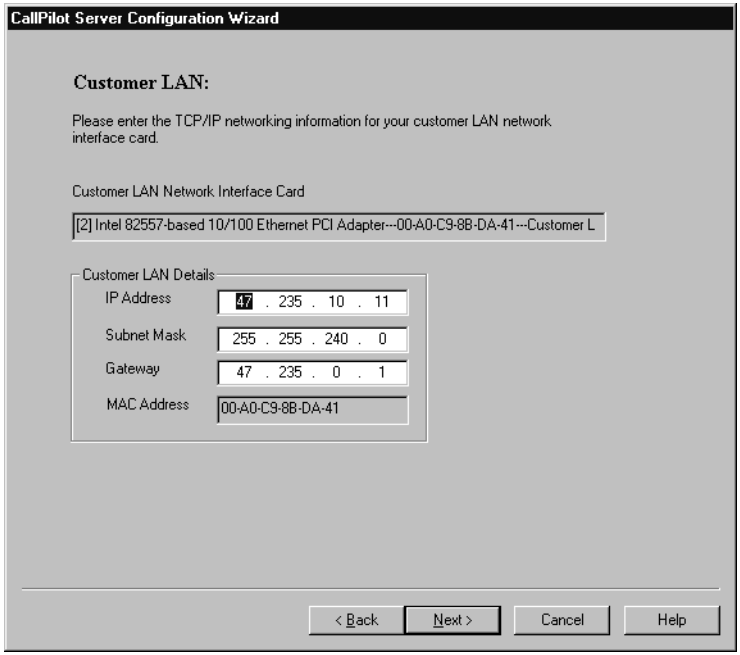
To select the CLAN card for the 200i or 201i server

Select the card labeled “Customer LAN.”

Customer LAN TCP/IP information

Dialog box example

The MAC address is prefilled and identifies the network card you selected.



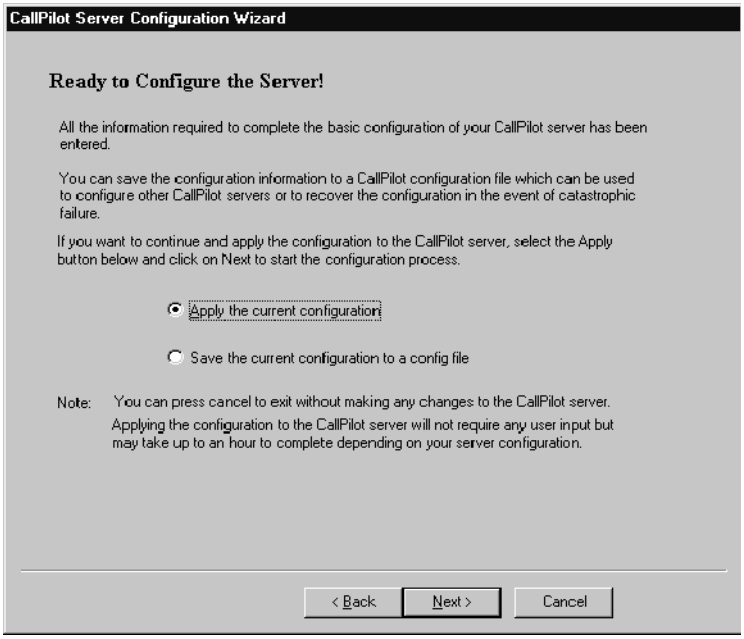
To enter the CallPilot server CLAN TCP/IP information

1 Enter the IP Address, Subnet Mask, and Gateway that were planned for this CallPilot server in the Configuration Wizard worksheets.

2 Click Next.

Ready to Configure the Server

Dialog box example



To apply the current configuration

Use this procedure to configure CallPilot based on your entries in the Configuration Wizard.

Note: When you apply the configuration changes, CallPilot is temporarily taken out of service. You must restart the CallPilot server after the configuration changes are applied.

1 Select Apply the current configuration. To leave the server configuration as it was before you ran the Configuration Wizard, click Cancel.

2 Click Next.

Result: You are prompted to confirm that you want to continue.

3 Click Yes.

Result: The configuration changes are applied to the server.

Note: The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are adding or upgrading.

4 Click Finish. Then click OK.

5 Restart the server as follows:

a. Press Ctrl-Alt-Delete.

b. Click Shut Down... .

c. Select Shutdown and Restart.

d. Click OK.

Result: You might be informed that an SQLAnywhere service is running with connections, and asked if you want to end it.

e. Click Yes or End Task.

Result: You might also be asked if you want to save ACD proxy changes.

f. Click No.

Result: The server restarts.

Note: After the server restarts and you log on to CallPilot, the system ready indicator dialog boxes appear. These are described in "Checking that CallPilot is ready to accept calls (System Ready Indicator)" on page 400.

What's next?

Continue with Chapter 8, "Changing the CallPilot server Windows NT default passwords," on page 371.

Note: If you are upgrading from 1.0 or 1.06, return to the upgrade procedure.

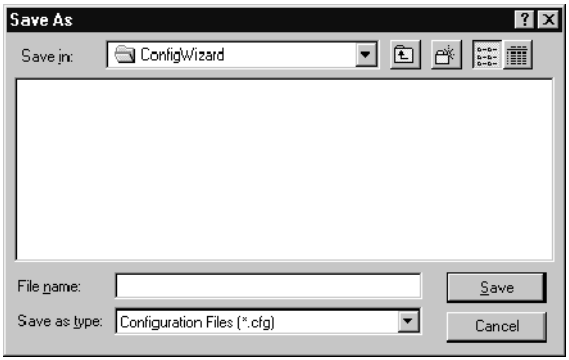
To save the current configuration to a config file

Use this procedure to create a configuration file to be used to configure CallPilot servers.

1 Select Save the current configuration to a config file.

2 Click Next.

Result: The Save As dialog box appears showing the default directory.



3 Save the configuration file to a floppy disk or to a network drive that can be accessed by the CallPilot server you intend to configure.

Result: The Ready to Configure the Server dialog box appears.

4 Click Cancel to exit the Configuration Wizard.

Section B: MSL-100/DMS-100 switch

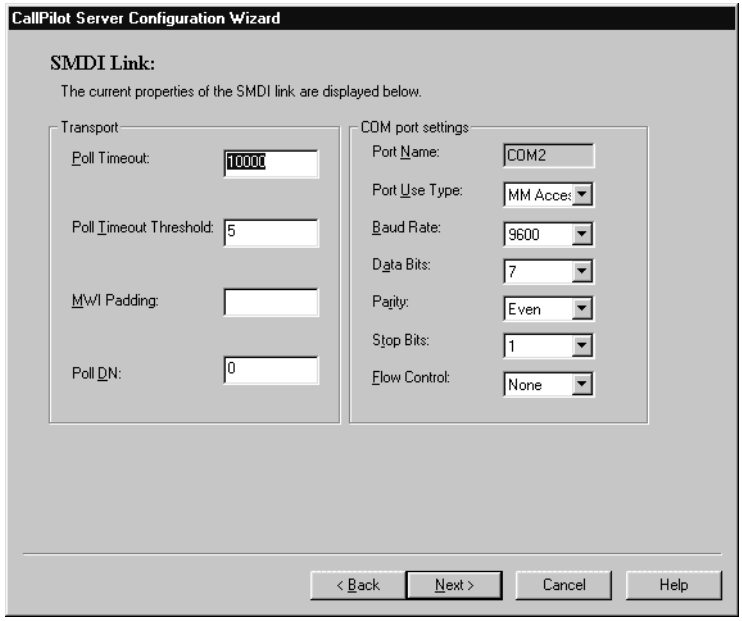
In this section

SMDI Link 322
Configure T1 link properties 325
Configure T1 channel properties 328
Select the Customer LAN NIC 332
Customer LAN TCP/IP information 333
Ready to Configure the Server 334

SMDI Link

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled. Some default values appear even the first time you run the Configuration Wizard.



To enter SMDI link information

This dialog box defines the parameters for the polling signals sent by CallPilot to verify that the SMDI link is operational. It also displays the SMDI link settings.

1 Update the SMDI link information. See "SMDI link field descriptions" on page 323.

2 Click Next.

SMDI link field descriptions

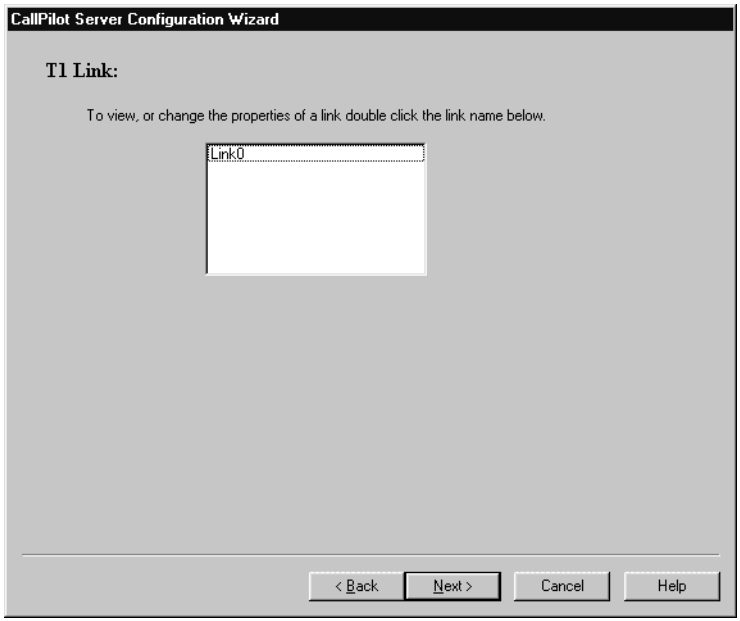
Box	Description
Transport parameters	
Poll Timeout	The unit for this field is milliseconds. This value is the length of time that CallPilot waits for a response after a polling message has been sent. This value multiplied by the Poll Timeout Threshold value gives you the total length of time CallPilot waits before declaring that the SMDI link is down. **Example:** Poll Timeout is 10 000 milliseconds, which equals 10 seconds. Poll Timeout Threshold is 5. This means CallPilot waits 50 seconds (10 seconds x 5) without a response from the polling signal before declaring that the SMDI link is down. **Default:** 10000
Poll Timeout Threshold	The number of failed attempts at receiving a response before CallPilot declares the SMDI link or switch is down. **Default:** 5
MWI Padding	Enter the MWI DN, including any prefixes that are required to complete the MWI. **Default:** blank
Poll DN	Enter 0. The intention of the polling signal is to generate an invalid DN response from the switch. Therefore, an invalid DN (such as 0) is required. **Default:** 0

Box	Description
COM Port Settings	
Port Name	COM2 (cannot be changed). This is the serial port on CallPilot where the SMDI link connects.
Port Use Type	**Default and recommended value:** MM Access
Baud Rate	**Default and recommended value:** 9600
Data Bits	**Default and recommended value:** 7
Parity	**Default and recommended value:** Even
Stop Bits	**Default and recommended value:** 1
Flow Control	**Default and recommended value:** None

Configure T1 link properties

Dialog box example

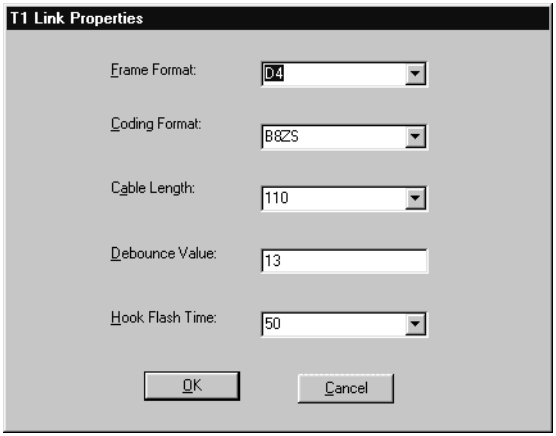
This dialog box shows the available T1 links. Configure each T1 link before clicking Next.



To configure the T1 link properties

1 Double-click a T1 link.

Result: The T1 Link Properties dialog box appears.



2 Update the Cable Length. For all other boxes, the default values are acceptable. See "T1 link field descriptions" below.

3 Click OK to return to the T1 Link dialog box.

4 Repeat this procedure for all T1 links before continuing to the next dialog box.

T1 link field descriptions

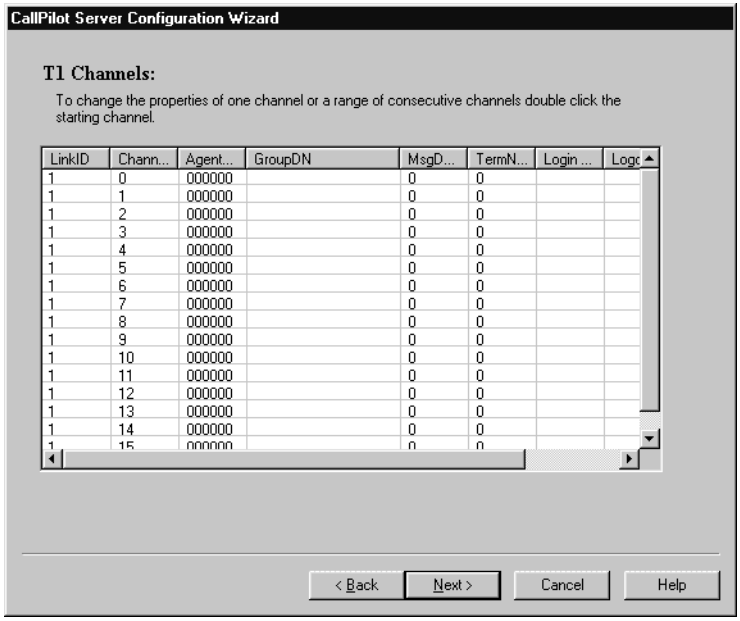
Box	Description
Frame Format	**Only D4 is supported.** D4 Frame Format is a framing format in which signaling for voice channels is carried in-band by every channel, along with the encoded voice. Robbed-bit signaling is a technique used in D4 channel banks to convey signaling information. With this technique, the eighth bit of each of the 24 8-bit timeslots is "robbed" every sixth frame to convey voice-related signaling information for each voice channel.

Box	Description
Coding Format	**Only B8ZS is supported.** Binary 8 Zero Substitution is a technique used to accommodate the 1s density requirement for digital T-carrier facilities in the public network, while allowing 65 kbytes/s clear data per channel. Rather than inserting a 1 for every seven consecutive zeros, B8ZS inserts two violations of the bipolar line encoding technique for digital transmission links.
Cable Length	Select the length of the T1 cable in feet.
Debounce Value	The filter used to suppress the AB bit changes due to noise. The entry in this field is multiplied by 10 milliseconds. **Default and recommended value:** **13** (which translates to 13 x 10 milliseconds = 130 milliseconds)
Hook Flash Time	Hook flash is the operation to go on-hook temporarily. The hook flash time is the duration that the hook switch remains in on-hook state. The entry in this field is multiplied by 10 milliseconds. **Default and recommended value:** **50** (which translates to 50 x 10 milliseconds = 500 milliseconds)

Configure T1 channel properties

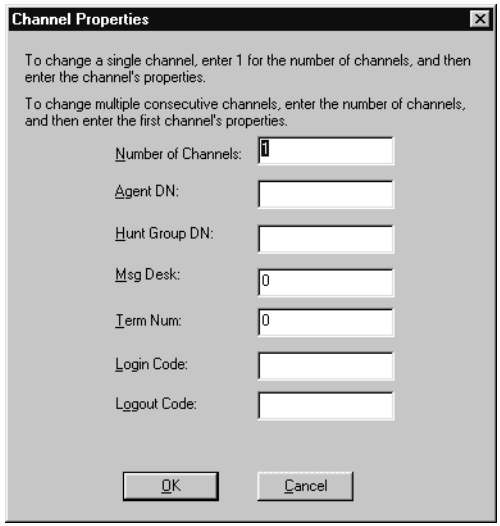
Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled. Some default values appear even the first time you run the Configuration Wizard.



To configure the T1 channel properties

1 Double-click the first channel (in the top row) in the T1 Channels dialog box. The following dialog box appears:



2 Fill in the data. For field descriptions, see "T1 channel field descriptions" on page 331.

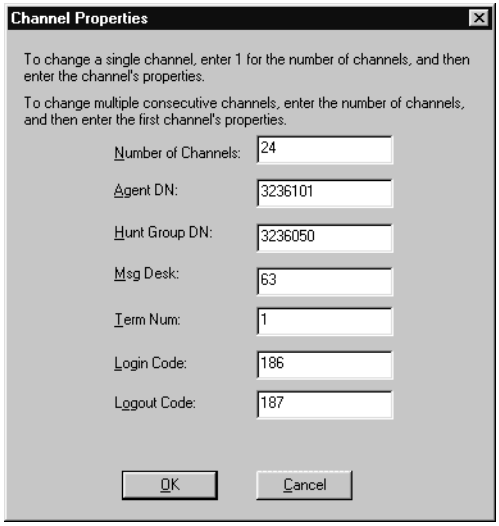
To update all the channels in one UCD group, complete these steps:

a. Enter the number of channels in the UCD group in the Number of Channels box.

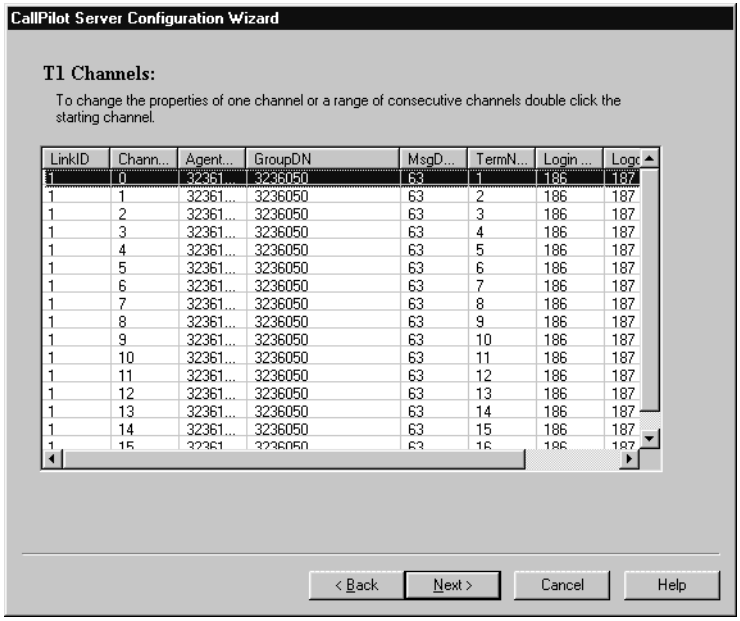
b. Enter the Agent DN of the first channel in this UCD group. The Agent DNs for the remaining UCD agents in this range are assigned by incrementing the starting Agent DN.

c. Enter appropriate values in the remaining fields. See "T1 channel field descriptions" on page 331.

Example: In the following example, 24 channels are configured for the same hunt group:



Result: After you click OK, the T1 Channels dialog box similar to the following appears with the updated data:



3 Repeat this procedure until all T1 channels are configured before continuing to the next dialog box.

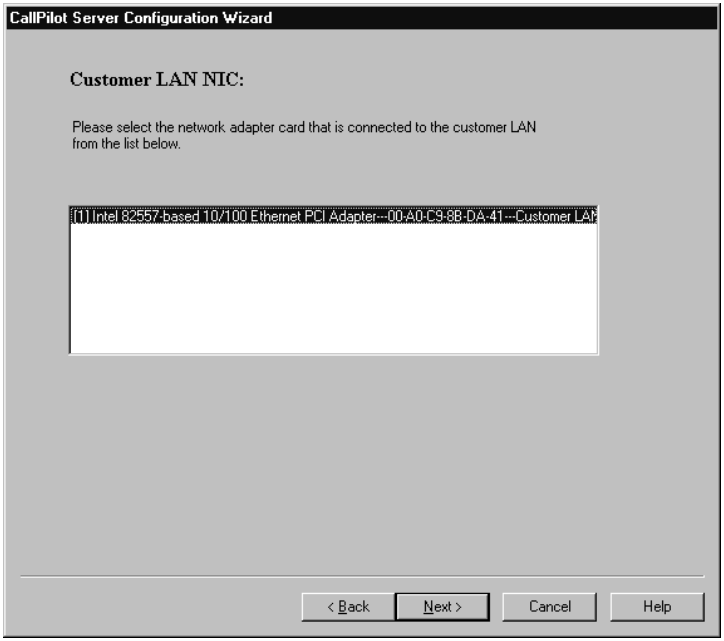
T1 channel field descriptions

Box	Description
Number of Channels	The number of channels to configure. For example, enter 1 to configure a single channel. Enter more than 1 to configure a range of channels.
Agent DN	The DN of the first UCD agent in the range of channels you are configuring.
Hunt Group DN	The UCD DN of the UCD group. It is also known as the Primary DN of the UCD group.
Msg Desk	Message desk number (1–63). If you have more than one UCD group, one of them must be set to 63. For simplicity, Nortel Networks recommends that the first UCD group on a data link be set to 63. The second is set to 62, and descending through 61, 60, ... 2, 1.
Term Num	Terminal number. This is the unique ID assigned to each UCD agent.
Login Code	The UCD agent login code. **Note:** Only digits 0 to 9 are supported. The characters * and # are not supported. See "Login and Logout code restrictions" on page 132.
Logout Code	The UCD agent logout code. **Note:** Only digits 0 to 9 are supported. The characters * and # are not supported. See "Login and Logout code restrictions" on page 132.

Select the Customer LAN NIC

Dialog box example

This dialog box shows the network cards that are currently installed in CallPilot.



To select the CLAN card

1 If there is only one network card installed in the server, it is labeled "Customer LAN."

If there is more than one network card installed, use the MAC address information (the series of numbers beside the network card name) in the dialog box to determine which card you should select for the CLAN. The next time you run the Configuration Wizard, the card you selected as the CLAN card is identified as "Customer LAN" in this dialog box.

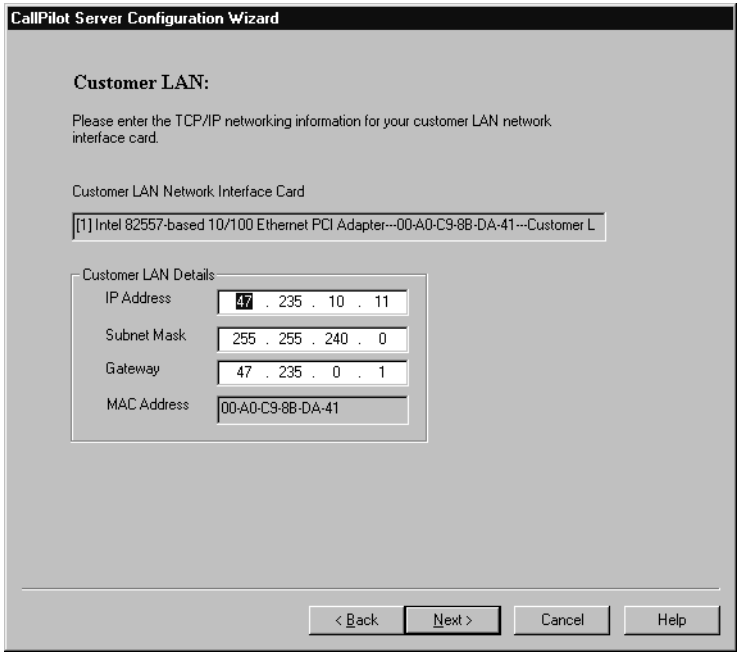
Note: For tower and rackmount servers, the MAC address label on the network card is visible through the backplane of the CallPilot server.

2 Click Next.

Customer LAN TCP/IP information

Dialog box example

The MAC address is prefilled and identifies the network card you selected.

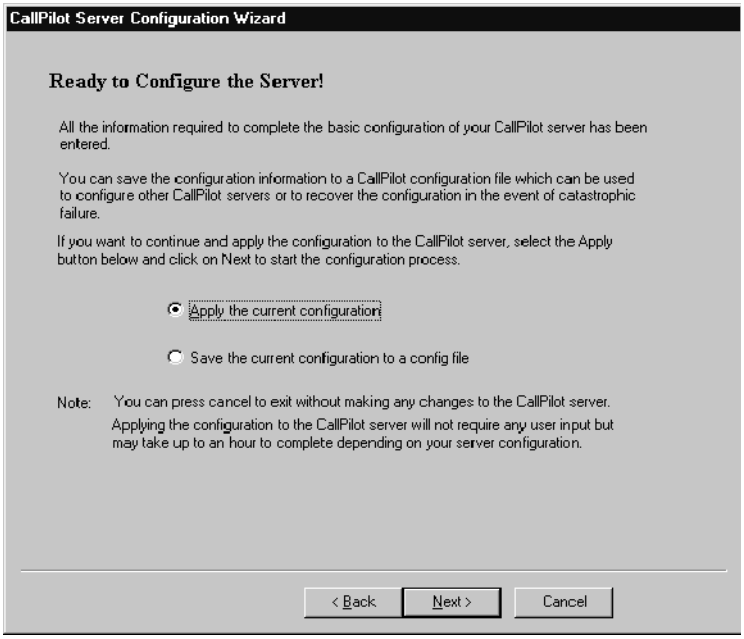


To enter the CallPilot server CLAN TCP/IP information

1. Enter the IP Address, Subnet Mask, and Gateway that were planned for this CallPilot server in the Configuration Wizard worksheets.
2. Click Next.

Ready to Configure the Server

Dialog box example



To apply the current configuration

Use this procedure to configure CallPilot based on your entries in the Configuration Wizard.

Note: When you apply the configuration changes, CallPilot is temporarily taken out of service. You must restart the CallPilot server after the configuration changes are applied.

1. Select Apply the current configuration. To leave the server configuration as it was before you ran the Configuration Wizard, click Cancel.
2. Click Next.

   Result: You are prompted to confirm that you want to continue.

3 Click Yes.

Result: The configuration changes are applied to the server.

Note: The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are adding or upgrading.

4 Click Finish. Then click OK.

5 Restart the server as follows:

a. Press Ctrl-Alt-Delete.

b. Click Shut Down... .

c. Select Shutdown and Restart.

d. Click OK.

Result: You might be informed that an SQLAnywhere service is running with connections, and asked if you want to end it.

e. Click Yes or End Task.

Result: You might also be asked if you want to save ACD proxy changes.

f. Click No.

Result: The server restarts.

Note: After the server restarts and you log on to CallPilot, the system ready indicator dialog boxes appear. These are described in "Checking that CallPilot is ready to accept calls (System Ready Indicator)" on page 400.

What's next?

Continue with Chapter 8, "Changing the CallPilot server Windows NT default passwords," on page 371.

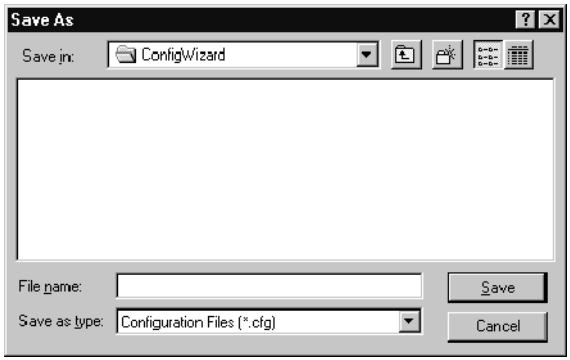
To save the current configuration to a config file

Use this procedure to create a configuration file to be used to configure CallPilot servers.

1 Select Save the current configuration to a config file.

2 Click Next.

Result: The Save As dialog box appears showing the default directory.



3 Save the configuration file to a floppy disk or to a network drive that can be accessed by the CallPilot server you intend to configure.

Result: The Ready to Configure the Server dialog box appears.

4 Click Cancel to exit the Configuration Wizard.

Section C: Lucent, Mitel, or Rolm switch

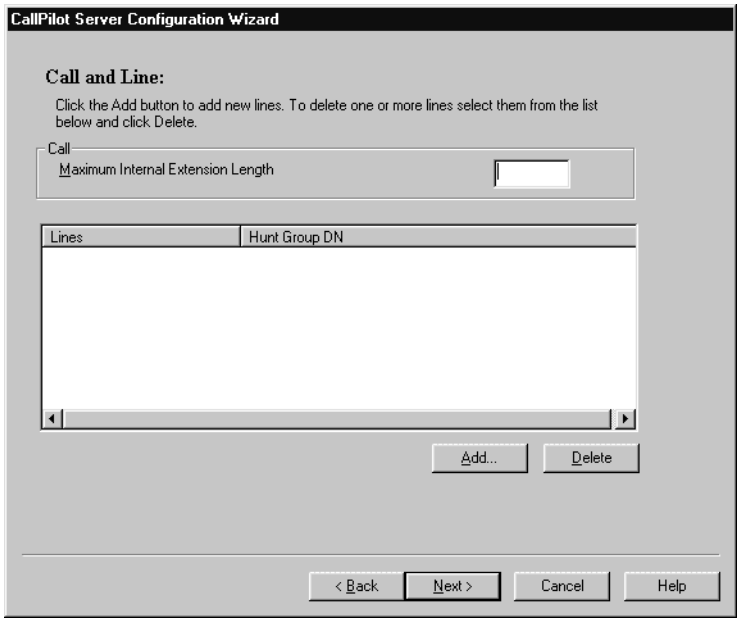
In this section

Call and Line information 338
Message Waiting Indicator information 343
Select the Customer LAN NIC 349
Customer LAN TCP/IP information 350
Ready to Configure the Server 351

Call and Line information

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.



To add call and line information

Use this dialog box to enter the DNs and hunt group DNs for the digital sets programmed on the switch for CallPilot. This includes the DN designated for MWI in the switch programming.

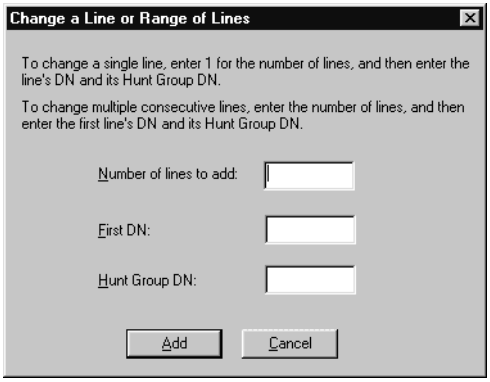
For the MWI hunt group DN, use a dummy value that does not correspond to a DN or hunt group that is programmed on the switch. If you assign a hunt group DN that is programmed on the switch, the MWI DN can inadvertently receive a call. The MWI DN is used to make calls from CallPilot to the switch to set the MWI, and should not be used to receive incoming calls.

Note: This procedure follows an example where you add the first seven lines, followed by the MWI line, followed by any remaining lines. Nortel Networks recommends that you use the DN associated with the last port on the first VB2000 card as the MWI DN. If digital sets have been configured for all eight ports on the first VB2000 card, then the MWI DN should be the eighth DN.

1 Fill in the Maximum Internal Extension Length. For field descriptions, see "Call and line field descriptions" on page 342.

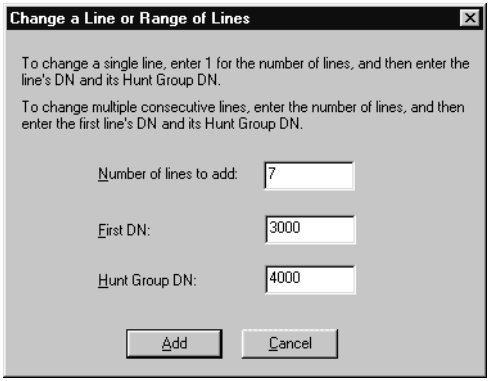
2 Click Add to add lines.

Result: The following dialog box appears:



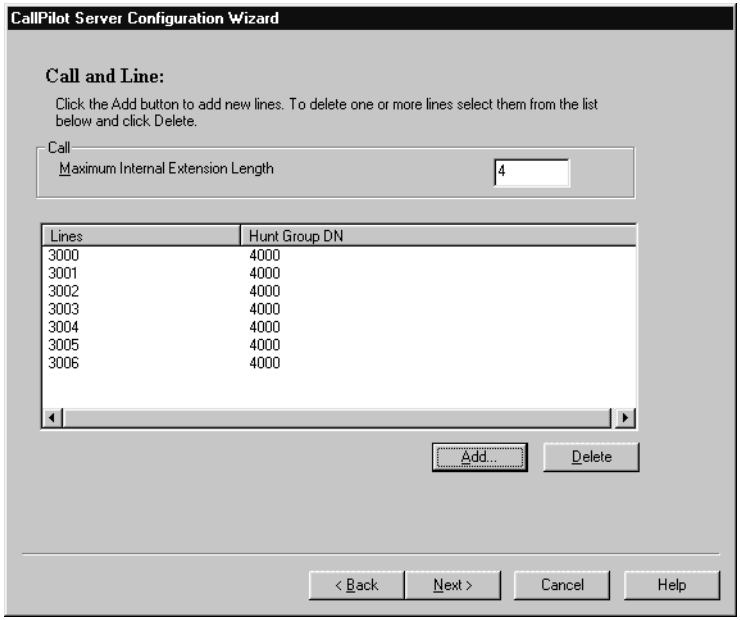
3 Fill in data.

Example:



4 Click Add.

Result: The Call and Line dialog box appears and shows the added lines.



5 Add the line that has been designated for MWI. When the switch is programmed, one DN is designated for MWI.

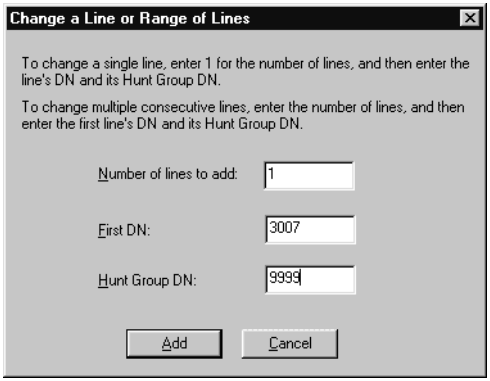
a. Click Add.

Result: The Change a Line or Range of Lines dialog box appears.

b. Specify the following:

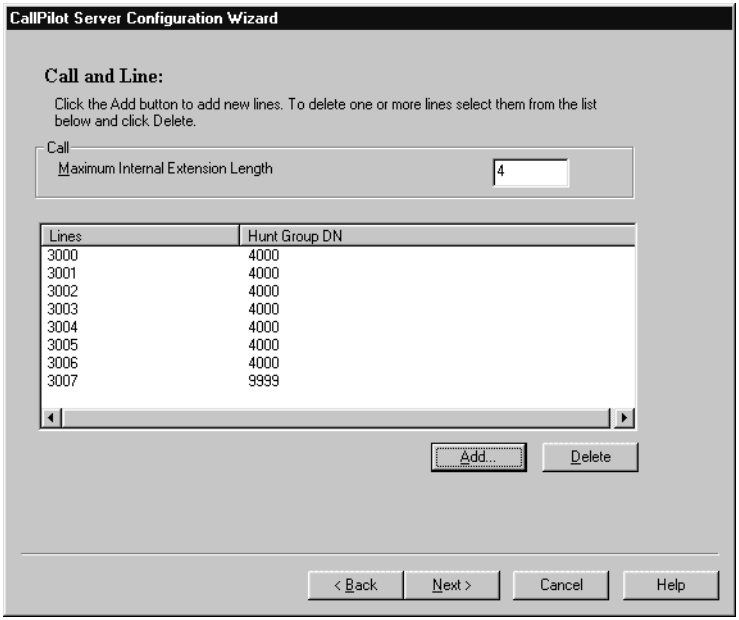
Box	Response
Number of lines to add	1
First DN	The MWI DN.
Hunt Group DN	A dummy value that does not correspond to a real DN.

Example:



c. Click Add.

Result: The Call and Line dialog box appears.



6 Add any remaining lines.

7 Click Next.

Call and line field descriptions

Boxes and Columns	Description
Maximum Internal Extension Length	The maximum number of digits to be used to identify an internal extension.
Lines	The DNs of the digital telsets configured for each port on each VB2000 card in the CallPilot server.
Hunt Group DN	The Hunt Group DN for the line DN.

Message Waiting Indicator information

Dialog box example

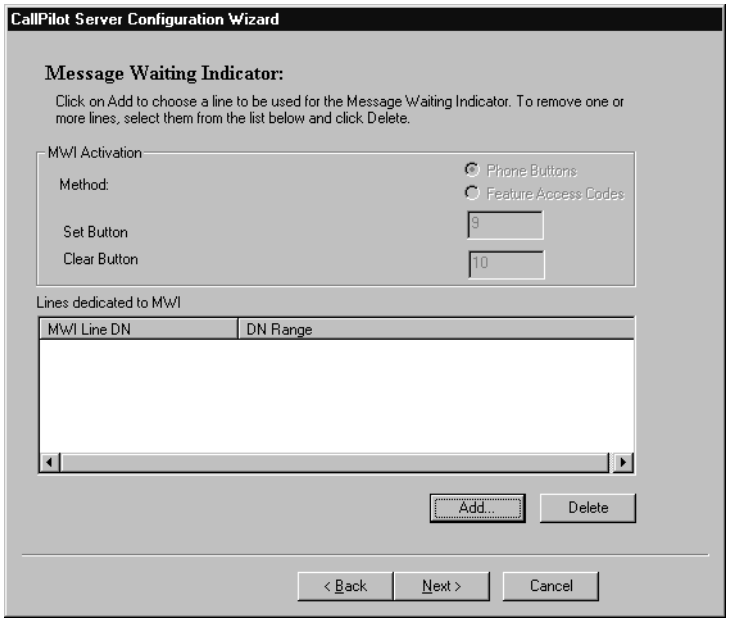
If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.

The Message Waiting Indicator (MWI) dialog box varies slightly depending on the switch type (Lucent, Mitel, or Rolm), and this is described in the examples below.

Note: For field descriptions, see "MWI field descriptions" on page 347

Lucent example

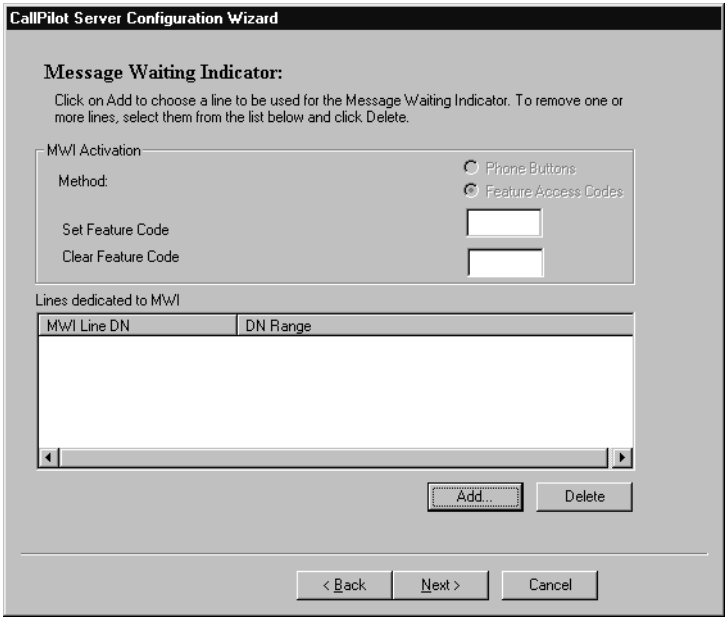
For Lucent switches, the MWI Activation is prefilled and cannot be changed, as shown in this example. The switch programming defines the MWI Set Button as 9 and the Clear Button as 10, and these values appear here for your information only.



Continue with "To add MWI information" on page 345.

Mitel example

For Mitel switches, the MWI Activation method is Feature Access Codes.



The switch administrator defines the feature access codes for MWI activation in the switch programming. In this dialog box, enter the MWI feature access codes that are defined on the switch. Then continue with "To add MWI information" on page 345.

Rolm example

For Rolm switches, the MWI Activation method depends on the type of Rolm switch.

For Rolm switches that use phone buttons to activate MWI, the Set Button and Clear Button are prefilled to 37 in the dialog box.

For Rolm switches that use feature access codes to activate MWI, the Set Feature Code and Clear Feature Code boxes are modifiable. The switch administrator defines the feature access codes for MWI activation in the switch programming. In this dialog box, you enter the feature access codes to make CallPilot aware of these codes.

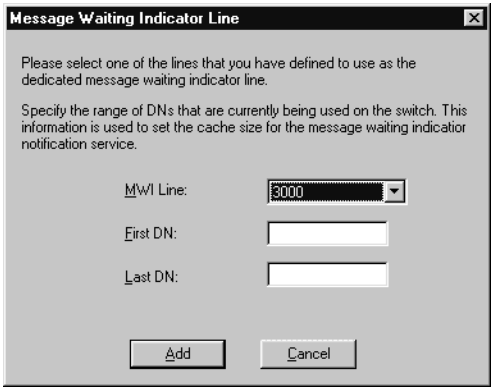
Continue with "To add MWI information" below.

To add MWI information

1 If the switch type (Mitel, and some Rolm models) is one that uses Feature Access Codes for MWI Activation, then enter the feature access codes. For field descriptions, see "MWI field descriptions" on page 347.

2 In the Message Waiting Indicator dialog box, click Add.

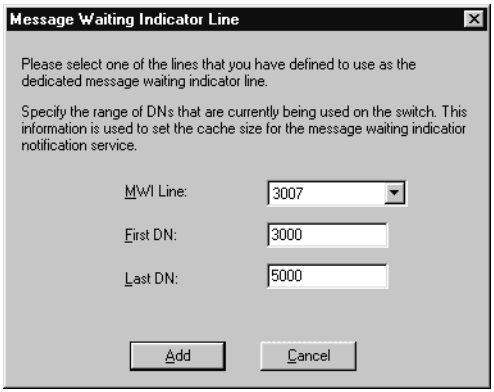
Result: The Message Waiting Indicator Line dialog box appears. By default, it shows the first configured line (as defined in the Call and Line dialog box) in the MWI Line box.



3 Click the down arrow beside the MWI Line box to see the list of configured channels. Select the channel to use for MWI.

4 Use the First DN and Last DN boxes to specify the range of DNs that are used on the switch.

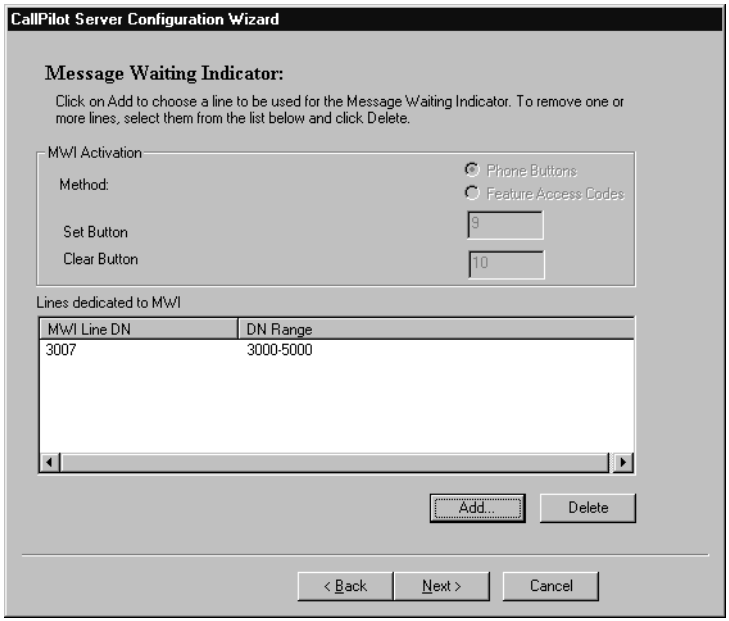
Example:



5 Click Add.

Result: The Message Waiting Indicator dialog box appears with the added data.

Note: The dialog box below is an example of the Lucent version. The example for Mitel and Rolm would be similar.



6 Click Next.

MWI field descriptions

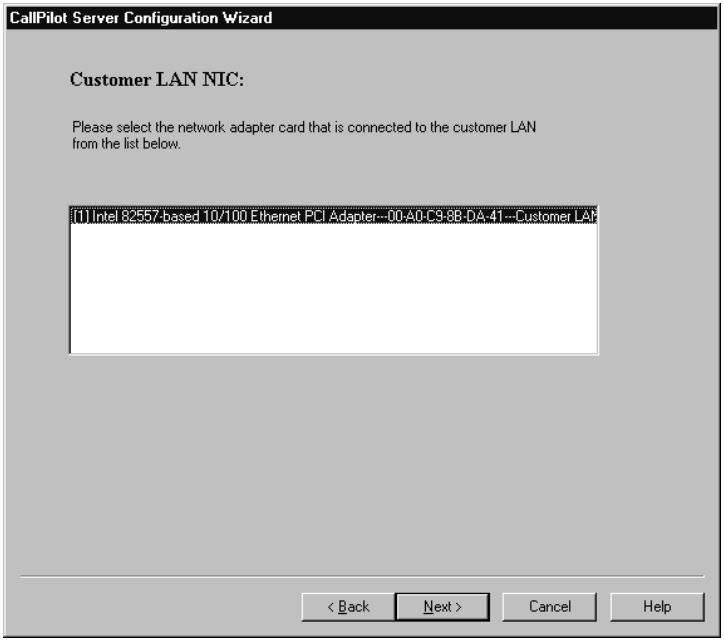
Box	Description
Phone Buttons	If the switch model (which is defined in the keycode) uses phone buttons in the switch programming for MWI activation, then this option is selected and grayed out.
Feature Access Codes	If the switch model (which is defined in the keycode) uses feature access codes in the switch programming for MWI activation, then this option is selected and grayed out.

Box	Description
Set Button	The phone button defined in the switch programming to activate MWI. This value is prefilled based on the switch model (which is defined in the keycode) and cannot be changed.
Clear Button	The phone button defined in the switch programming to clear MWI. This value is prefilled based on the switch model (which is defined in the keycode) and cannot be changed.
Set Feature Code	Enter the feature code defined in the switch programming to activate MWI.
Clear Feature Code	Enter the feature code defined in the switch programming to clear MWI.
MWI Line DN	The DN of the MWI line.
DN Range	The range of DNs that are currently used by the switch. This information enables CallPilot to optimize its handling of MWI notification. This does not have to be an exact range. For example, if the range 3000 to 5000 includes all the DNs used, but some DNs in this range are not used, this is still acceptable. However, keep the range reasonable in order to optimize CallPilot's handling of MWI.

Select the Customer LAN NIC

Dialog box example

This dialog box shows the network cards that are currently installed in CallPilot.



To select the CLAN card

1 If there is only one network card installed in the server, it is labeled "Customer LAN."

If there is more than one network card installed, use the MAC address information (the series of numbers beside the network card name) in the dialog box to determine which card you should select for the CLAN. The next time you run the Configuration Wizard, the card you selected as the CLAN card is identified as "Customer LAN" in this dialog box.

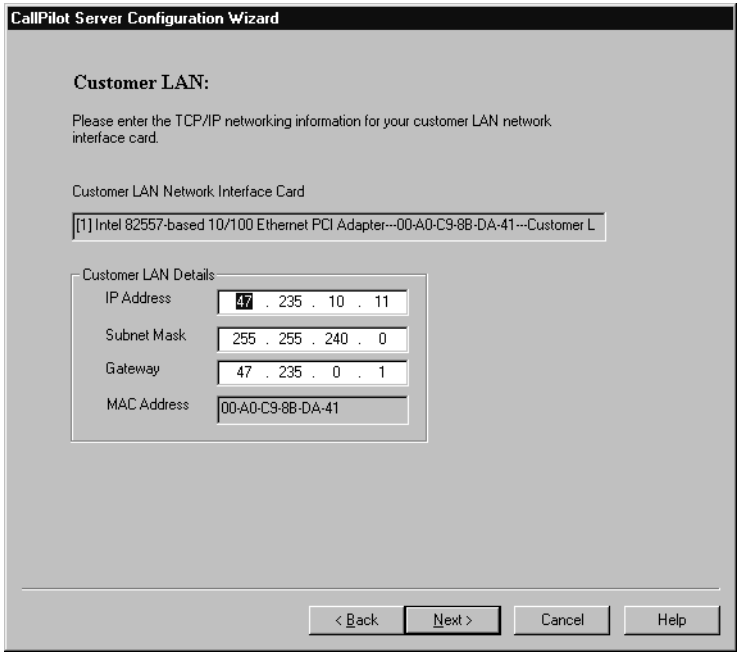
Note: For tower and rackmount servers, the MAC address label on the network card is visible through the backplane of the CallPilot server.

2 Click Next.

Customer LAN TCP/IP information

Dialog box example

The MAC address is prefilled and identifies the network card you selected.



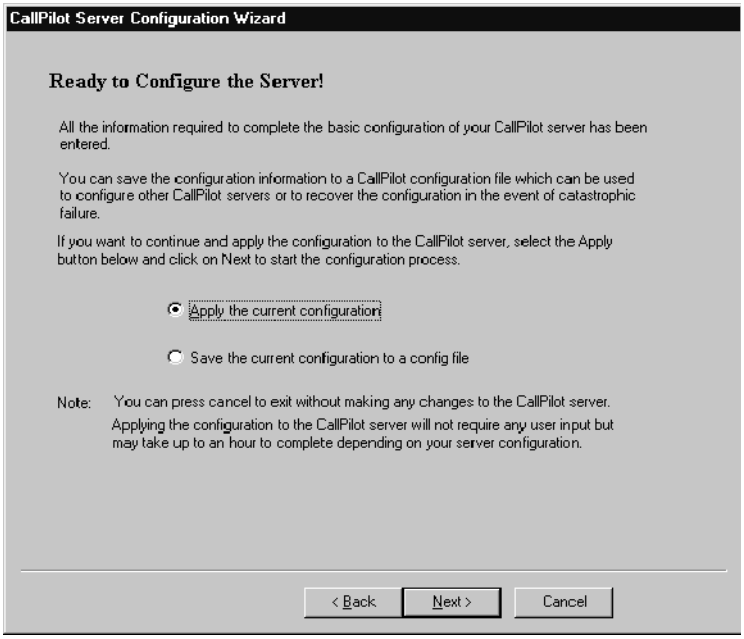
To enter the CallPilot server CLAN TCP/IP information

1 Enter the IP Address, Subnet Mask, and Gateway that were planned for this CallPilot server in the Configuration Wizard worksheets.

2 Click Next.

Ready to Configure the Server

Dialog box example



To apply the current configuration

Use this procedure to configure CallPilot based on your entries in the Configuration Wizard.

Note: When you apply the configuration changes, CallPilot is temporarily taken out of service. You must restart the CallPilot server after the configuration changes are applied.

1 Select Apply the current configuration. To leave the server configuration as it was before you ran the Configuration Wizard, click Cancel.

2 Click Next.

Result: You are prompted to confirm that you want to continue.

3 Click Yes.

Result: The configuration changes are applied to the server.

Note: The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are adding or upgrading.

4 Click Finish. Then click OK.

5 Restart the server as follows:

a. Press Ctrl-Alt-Delete.

b. Click Shut Down... .

c. Select Shutdown and Restart.

d. Click OK.

Result: You might be informed that an SQLAnywhere service is running with connections, and asked if you want to end it.

e. Click Yes or End Task.

Result: You might also be asked if you want to save ACD proxy changes.

f. Click No.

Result: The server restarts.

Note: After the server restarts and you log on to CallPilot, the system ready indicator dialog boxes appear. These are described in "Checking that CallPilot is ready to accept calls (System Ready Indicator)" on page 400.

What's next?

Continue with Chapter 8, "Changing the CallPilot server Windows NT default passwords," on page 371.

Note: If you are upgrading from 1.0 or 1.06, return to the upgrade procedure.

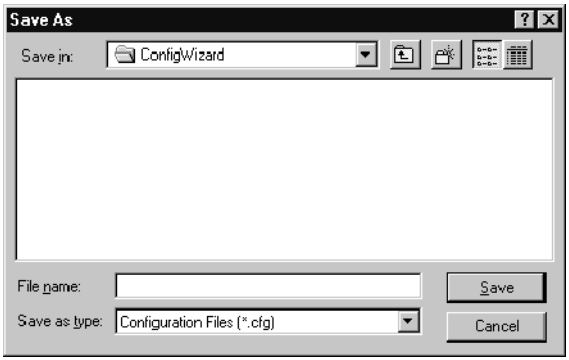
To save the current configuration to a config file

Use this procedure to create a configuration file to be used to configure CallPilot servers.

1 Select Save the current configuration to a config file.

2 Click Next.

Result: The Save As dialog box appears showing the default directory.



3 Save the configuration file to a floppy disk or to a network drive that can be accessed by the CallPilot server you intend to configure.

Result: The Ready to Configure the Server dialog box appears.

4 Click Cancel to exit the Configuration Wizard.

Section D: Matra switch

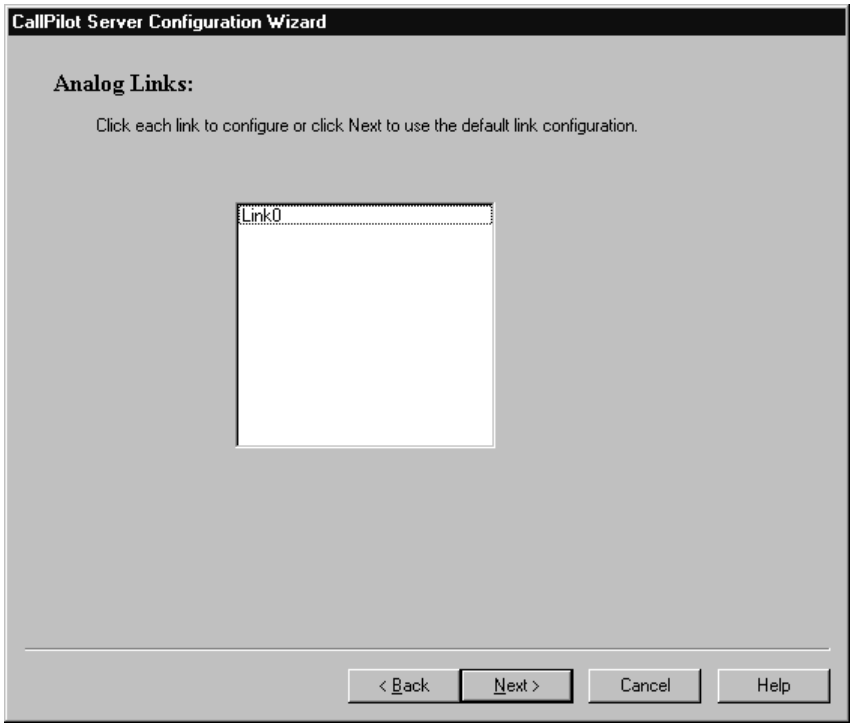
In this section

Configure analog link properties 356
Configure Matra channel properties 359
Message Waiting Indicator information 362
Select the Customer LAN NIC 366
Customer LAN TCP/IP information 367
Ready to Configure the Server 368

Configure analog link properties

Dialog box example

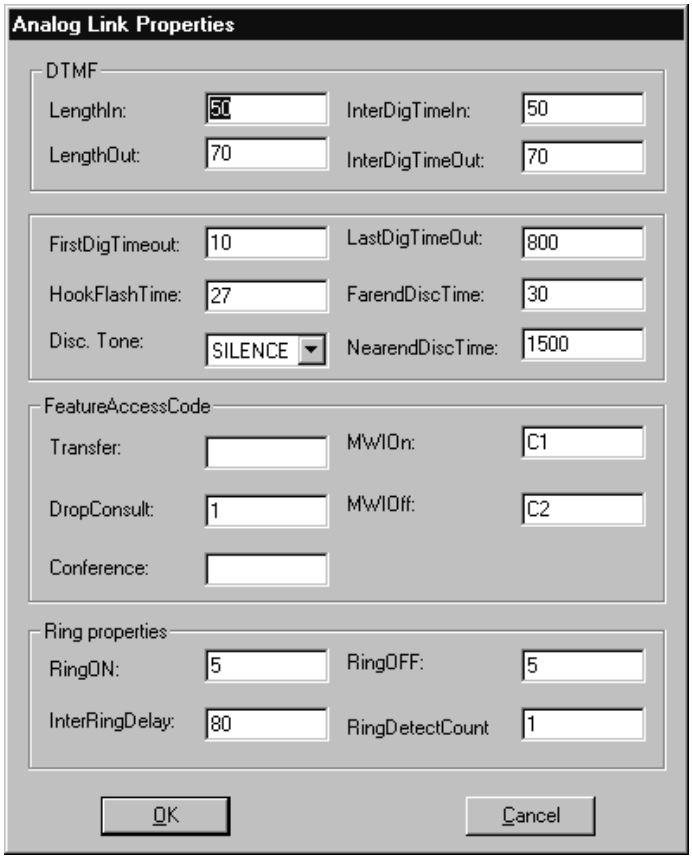
This dialog box shows the available analog links. You must configure each analog link (MPB16-2T board) before clicking Next.



To configure the analog links

1 Double-click an analog link in the list.

Result: The Analog Link Properties dialog box appears.



2 Update the HookFlash box according to the country requirements. The default of 27 (or 270 Msec) is set for France.

3 Update the DropConsult box if necessary to match what is programmed on the switch.

4 Keep the default settings for the following parameters:

- FirstDig Timeout
- LastDig Timeout

- MWIOn
- MWIOff
- RingON
- RingOFF
- InterRingDelay
- RingDetectCount

Note: The MWIOn and MWIOff boxes are reserved for future use. Changing these values currently has no effect.

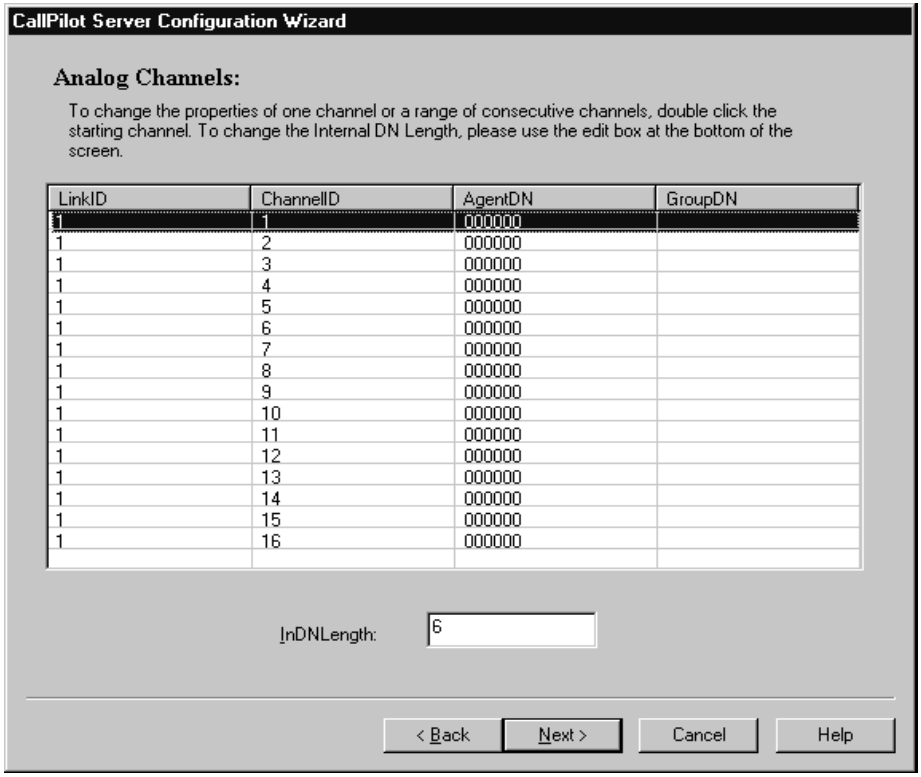
5 Click OK to return to the Analog Link dialog box.

6 Repeat this procedure for each link, and then click Next to continue to the next dialog box.

Configure Matra channel properties

Dialog box example

Use this dialog box to modify the extension DN of each Q23 hunt group.



Note: The Agent DN entered in this graphical user interface must match the physical channel's DN. Nortel Networks recommends that physical channels are connected to the switch such that their DNs are in numerical order. Then Agent DNs can also be entered in the table in numerical order.

To configure the analog channel properties

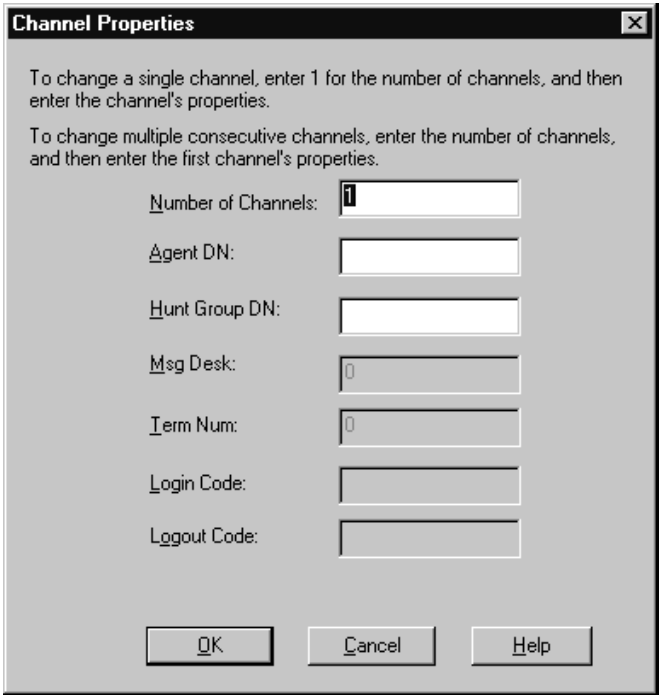
Use this dialog box to specify the channels that are programmed on the switch for CallPilot. This includes the DN designated for MWI in the switch programming.

For the MWI hunt group DN, use a dummy value that does not correspond to a DN or hunt group that is programmed on the switch. If you assign a hunt group DN that is programmed on the switch, the MWI DN can inadvertently receive a call. The MWI DN is used to make calls from CallPilot to the switch to set the MWI, and should not be used to receive incoming calls.

1 In the Analog Channels dialog box, change the InDNLength value to the number of digits used in internal DNs.

2 Double-click on the first channel in the Analog Channels dialog box.

Result: The following dialog box appears:



3 To update all of the channels in one Q23 hunt group, do the following:

   a. Enter the number of channels in the Q23 hunt group in the Number of Channels box.

   b. Enter the DN of the first channel in this group. The Agent DNs for the remaining agents in this range are assigned by incrementing the starting Agent DN.

   c. Enter the Hunt Group DN for this group.

   d. Click OK.

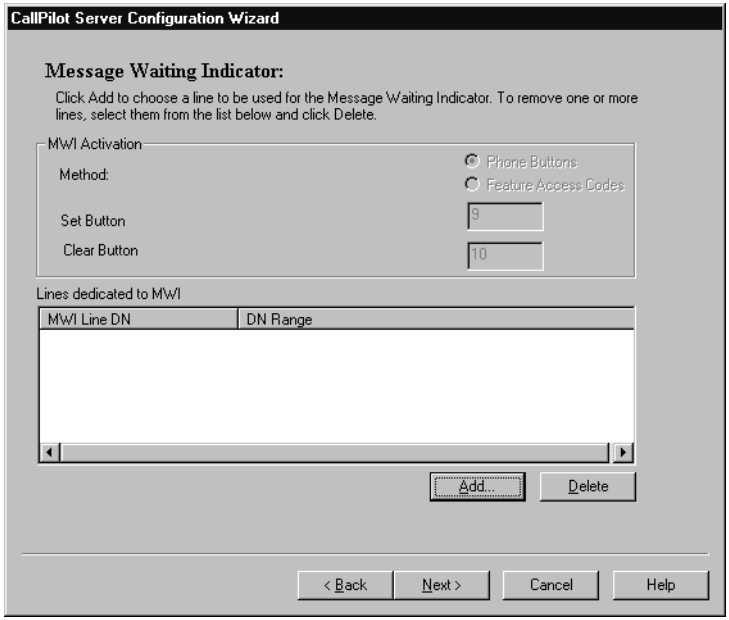
4 Add a channel for the MWI. Specify a dummy value for the MWI Hunt Group DN that does not correspond to a real DN (for example, 9999).

Message Waiting Indicator information

Dialog box example

If you are rerunning the Configuration Wizard or stepping through a prepared configuration file, the dialog box might be prefilled.

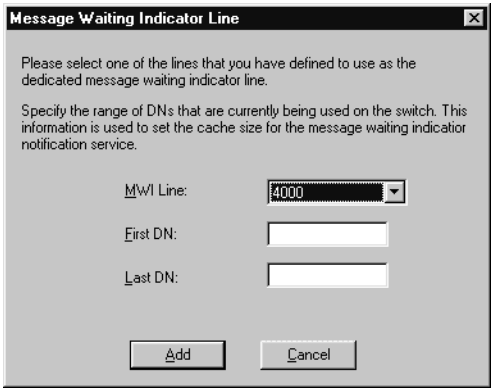
Note: The MWI Activation method information shown here is not applicable to Matra switches.



To add MWI information

1 In the Message Waiting Indicator dialog box, click Add. For field descriptions, see "MWI field descriptions" on page 365.

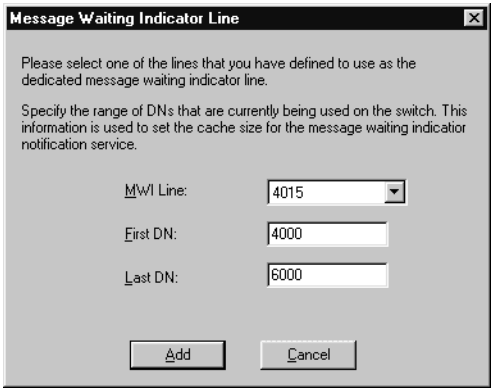
Result: The Message Waiting Indicator Line dialog box appears. By default, it shows the first configured channel (as defined in the Analog Channels dialog box) in the MWI Line box.



2 Click the down arrow beside the MWI Line box to see the list of configured channels. Select the channel to use for MWI.

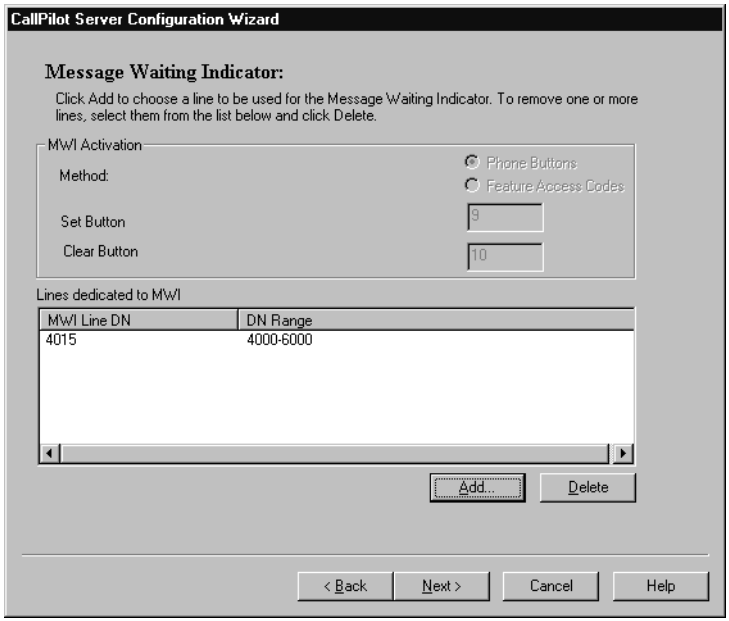
3 Use the First DN and Last DN boxes to specify the range of DNs that are used on the switch.

Example:



4 Click Add.

Result: The Message Waiting Indicator dialog box appears with the added data.



5 Click Next.

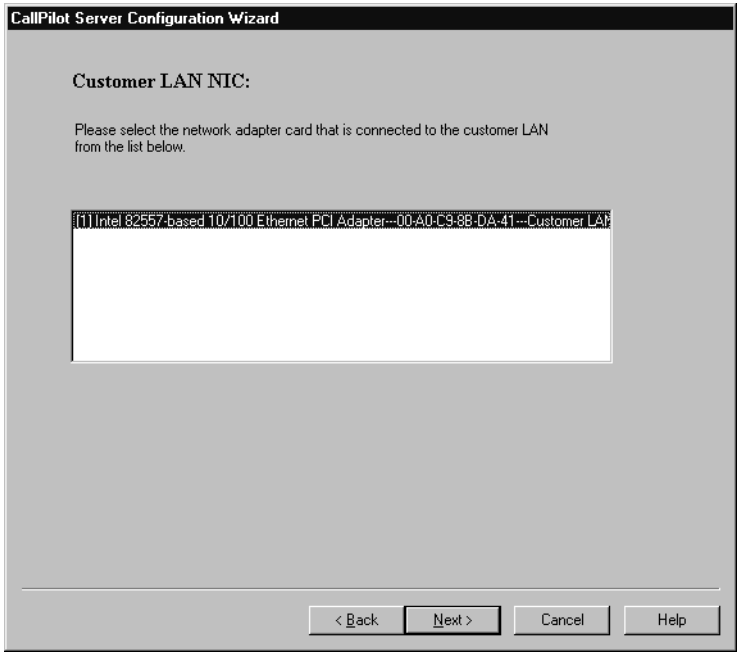
MWI field descriptions

Box	Description
Phone Buttons	This box is not used for Matra switches.
Feature Access Codes	This box is not used for Matra switches.
Set Button	This box is not used for Matra switches.
Clear Button	This box is not used for Matra switches.
MWI Line DN	The DN of the MWI line.
DN Range	The range of DNs that are currently used by the switch. This information enables CallPilot to optimize its handling of MWI notification. This does not have to be an exact range. For example, if the range 3000 to 5000 includes all the DNs used, but some DNs in this range are not used, this is still acceptable. However, keep the range reasonable in order to optimize CallPilot's handling of MWI.

Select the Customer LAN NIC

Dialog box example

This dialog box shows the network cards that are currently installed in CallPilot.



To select the CLAN card

1 If there is only one network card installed in the server, it is labeled "Customer LAN."

If there is more than one network card installed, use the MAC address information (the series of numbers beside the network card name) in the dialog box to determine which card you should select for the CLAN. The next time you run the Configuration Wizard, the card you selected as the CLAN card is identified as "Customer LAN" in this dialog box.

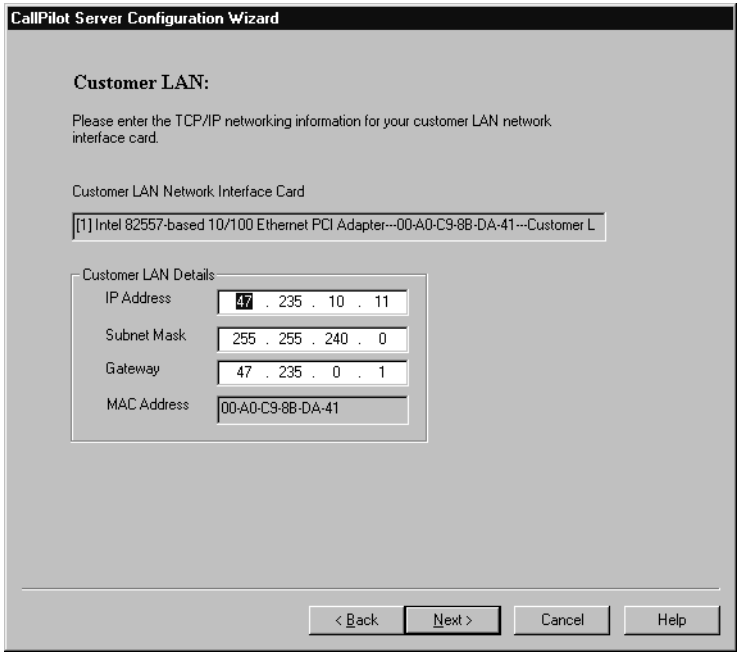
Note: For tower and rackmount servers, the MAC address label on the network card is visible through the backplane of the CallPilot server.

2 Click Next.

Customer LAN TCP/IP information

Dialog box example

The MAC address is prefilled and identifies the network card you selected.



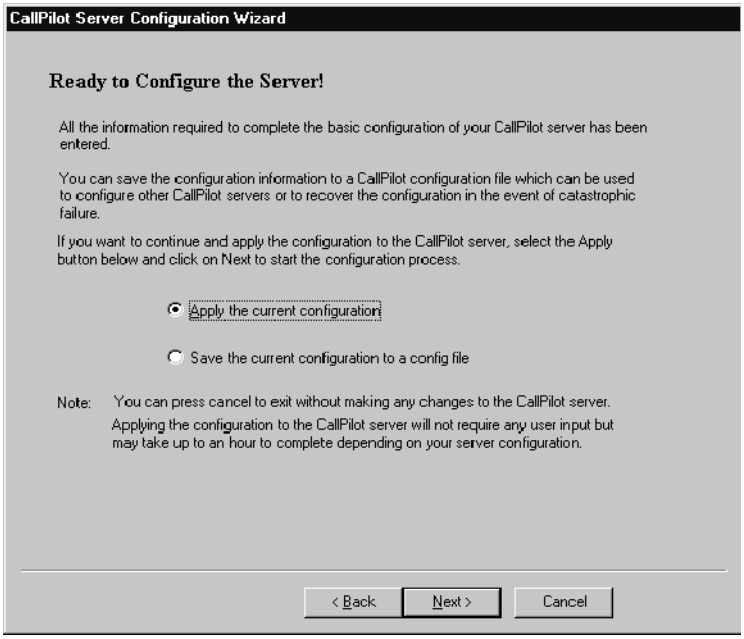
To enter the CallPilot server CLAN TCP/IP information

1 Enter the IP Address, Subnet Mask, and Gateway that were planned for this CallPilot server in the Configuration Wizard worksheets.

2 Click Next.

Ready to Configure the Server

Dialog box example



To apply the current configuration

Use this procedure to configure CallPilot based on your entries in the Configuration Wizard.

Note: When you apply the configuration changes, CallPilot is temporarily taken out of service. You must restart the CallPilot server after the configuration changes are applied.

1 Select Apply the current configuration. To leave the server configuration as it was before you ran the Configuration Wizard, click Cancel.

2 Click Next.

Result: You are prompted to confirm that you want to continue.

3 Click Yes.

Result: The configuration changes are applied to the server.

Note: The configuration changes take approximately 10 minutes, plus an additional 10 minutes for each language you are adding or upgrading.

4 Click Finish. Then click OK.

5 Restart the server as follows:

a. Press Ctrl-Alt-Delete.

b. Click Shut Down... .

c. Select Shutdown and Restart.

d. Click OK.

Result: You might be informed that an SQLAnywhere service is running with connections, and asked if you want to end it.

e. Click Yes or End Task.

Result: You might also be asked if you want to save ACD proxy changes.

f. Click No.

Result: The server restarts.

Note: After the server restarts and you log on to CallPilot, the system ready indicator dialog boxes appear. These are described in "Checking that CallPilot is ready to accept calls (System Ready Indicator)" on page 400.

What's next?

Continue with Chapter 8, "Changing the CallPilot server Windows NT default passwords," on page 371.

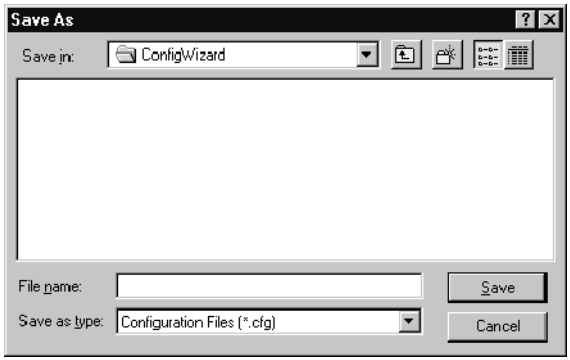
To save the current configuration to a config file

Use this procedure to create a configuration file to be used to configure CallPilot servers.

1 Select Save the current configuration to a config file.

2 Click Next.

Result: The Save As dialog box appears showing the default directory.



3 Save the configuration file to a floppy disk or to a network drive that can be accessed by the CallPilot server you intend to configure.

Result: The Ready to Configure the Server dialog box appears.

4 Click Cancel to exit the Configuration Wizard.

Chapter 8

Changing the CallPilot server Windows NT default passwords

In this chapter

Changing the CallPilot server Windows NT default passwords 372

Changing the CallPilot server Windows NT default passwords

Introduction

To maintain system security, change passwords regularly and store them in a secure location. The accounts described here are used to log on to Windows NT on the CallPilot server. These are not the accounts used to log on to a CallPilot system from the Administrative client PC.

Default accounts and passwords

The following accounts are created during the installation procedures at the factory. You are strongly encouraged to create your own passwords for the Administrator, NGenDist, and NGenDesign accounts. NGenDist and NGenDesign are Remote Access accounts. For the NGenSys account, it is up to the customer's discretion whether to change the default password.

Account	Default password	Intended use for this account
Administrator	abc123	This account has administrative privileges and can be used for configuring the server.
NGenSys	not disclosed for security reasons	An alternate Administrator account
NGenDist	not disclosed for security reasons	Distributor support
NGenDesign	not disclosed for security reasons	Nortel Networks technical support

When to change passwords

Passwords should be changed at the following times:

- during the initial system set up
- at regular intervals for maximum security
- if you experience trouble logging on to the CallPilot server

- if server software is reinstalled (the default accounts and passwords are recreated, so passwords must be changed)

Note: If you require support from Nortel Networks or your distributor, you must tell them the new passwords.

Password guidelines

Write down any new passwords and store them in a secure place for future reference. Passwords are case-sensitive.

New passwords should be

- unique
- alphanumeric (they should contain at least one number)
- a minimum of six characters
- not words in the dictionary

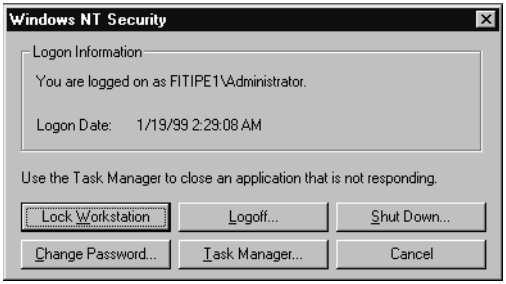
Example

xyd45fst

To change the Administrator password

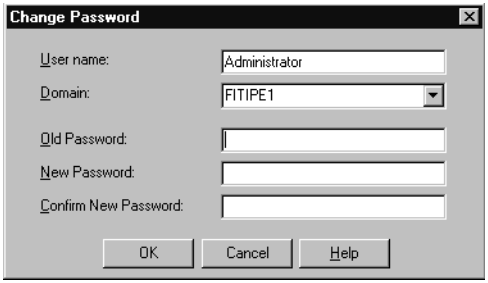
1. Log on to the server as Administrator.
2. Press Ctrl-Alt-Delete.

   Result: The Windows NT Security dialog box appears.



3 Click Change Password... .

Result: The Change Password dialog box appears.



4 In the Old Password box, enter the current password.

5 In the New Password box, enter the new password.

Note: Ensure the password meets the requirements described earlier in "Password guidelines" on page 373.

6 In the Confirm New Password box, enter the new password again.

7 Click OK.

Result: A dialog box appears indicating that the password has been successfully changed.

8 Click OK.

Result: You are returned to the Windows NT Security dialog box.

9 Click Cancel to close the Windows NT Security dialog box.

10 Record the password and store it in a safe, secure place away from the server.

To change the NGenDist and NGenDesign (and optionally NGenSys) passwords

Note: Whether you use this procedure to also change the NGenSys account password is up to the customer. If you do change the NGenSys password, you must apply the same password change to the MAS Backup/Restore service as described in "To change the NGenSys password for MAS Backup/Restore service" on page 376.

1. Log on to the server as Administrator.
2. Click Start > Programs > Administrative Tools (Common) > User Manager for Domains.

   Result: The User Manager window displays a list of available user accounts, including NGenDist and NGenDesign.
3. Double-click the NGenDist icon.

   Result: The User Properties window appears.
4. In the Password field, type the new password.

   Note: Ensure that you use a password that contains a combination of numbers and letters (see "Password guidelines" on page 373).
5. In the Confirm Password field, type the same password entered in the Password field.
6. Click OK to close the User Properties window.
7. Repeat steps 3 to 6 for NGenDesign.
8. Select Exit to save changes.
9. Record these passwords and store them in a safe, secure place away from the server.

   Note: If you have changed the NGenSys password, continue with "To change the NGenSys password for MAS Backup/Restore service" on page 376.

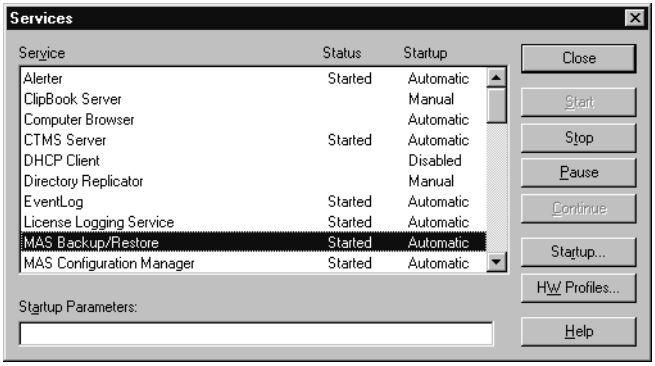
To change the NGenSys password for MAS Backup/Restore service

Note: This procedure is required only if you change the Windows NT user account password for NGenSys. The NGenSys password for MAS Backup/ Restore service must be the same as the password for the Windows NT NGenSys user account.

1 Click Start > Settings > Control Panel.

2 Double-click Services.

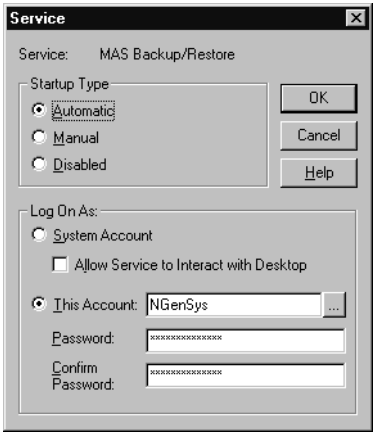
Result: The Services dialog box appears.



3 Scroll to MAS Backup/Restore service and select it.

4 Click Startup.

Result: The following dialog box appears.



5 In the Log On As section, fill in the Password and Confirm Password boxes with the current NGenSys password.

Note: Use the same password you assigned to NGenSys in "To change the NGenDist and NGenDesign (and optionally NGenSys) passwords" on page 375.

What's next?

Continue with Chapter 9, "Configuring Remote Access Service," on page 379.

Chapter 9

Configuring Remote Access Service

In this chapter

Configuring Remote Access Service 380

Configuring Remote Access Service

To configure the Remote Access Service

Note: The CallPilot server Remote Access Service (RAS) requires a pool of IP addresses to grant remote clients with dial-in privileges. Remote Access Service needs a range of IP addresses that includes at least two available IP addresses. The first IP address is used by the Remote Access Service. The remaining IP addresses are loaned to each dial-in client.

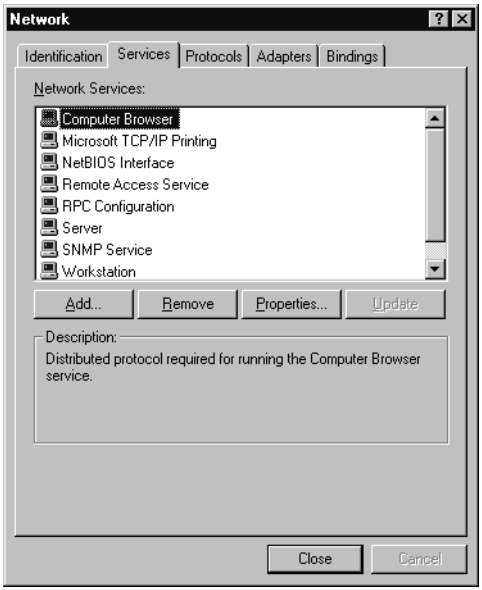
1 Click Start > Settings > Control Panel.

2 Double-click the Network icon.

Result: The Network dialog box appears.

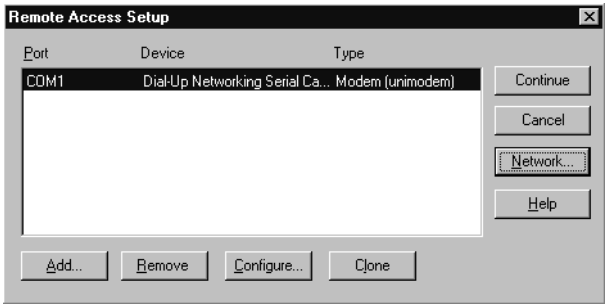
3 In the Network dialog box, click the Services tab.

Result: The Services tab appears.



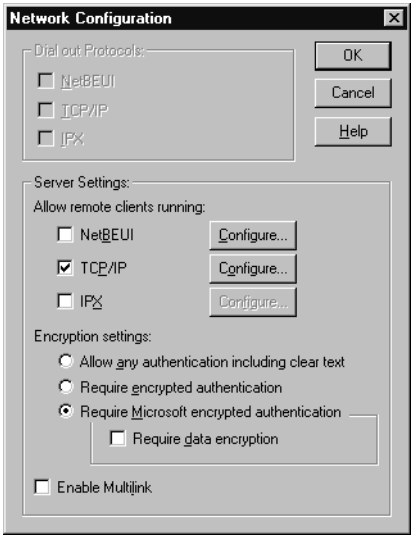
4 Select Remote Access Service, and then click Properties... .

Result: The Remote Access Setup dialog box appears.



5 Click Network... .

Result: The Network Configuration dialog box appears.

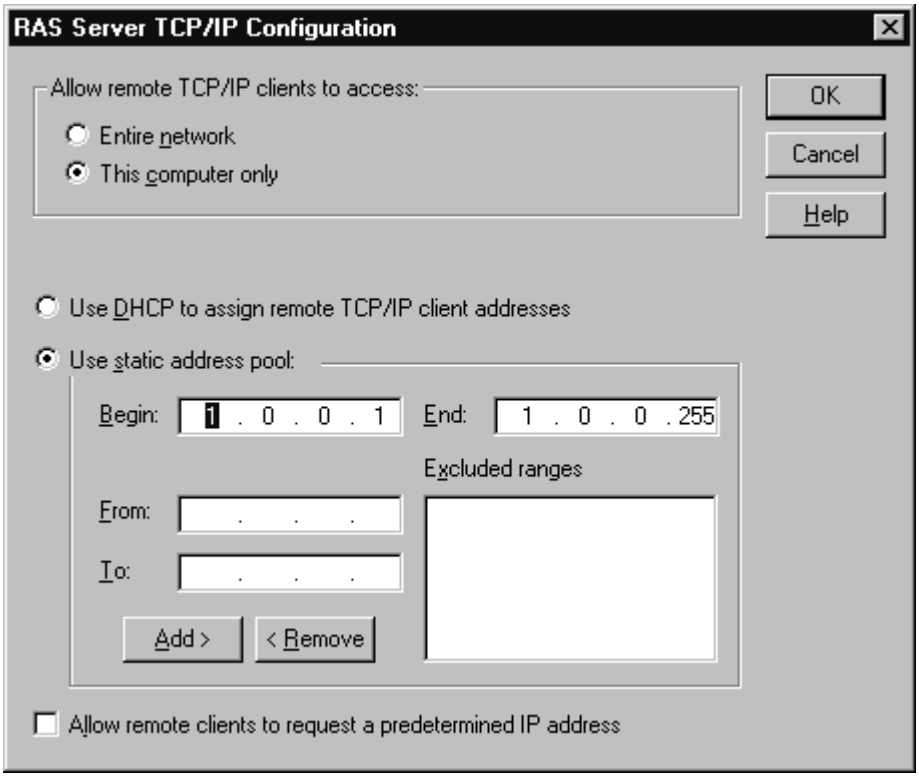


6 In the Server Settings section, select TCP/IP.

7 If NetBEUI is checked, clear it.

8 Click the TCP/IP Configure... button.

Result: The RAS Server TCP/IP Configuration dialog box appears.



9 Click This computer only.

10 Click Use static address pool.

11 Enter the range of IP addresses in the Begin and End boxes.

Note: The range has to include a minimum of two IP addresses, and the range of IP addresses must come from a valid ELAN or CLAN range of IP addresses. Use the From and To boxes and the Add and Remove buttons to exclude one or more IP address ranges.

12 Ensure that the Allow remote clients to request a predetermined IP address is not checked.

13 Click OK to close the RAS Server TCP/IP Configuration dialog box.

Result: The Network Configuration dialog box reappears.

14 Click OK.

Result: The Remote Access Setup dialog box reappears.

15 Click Continue.

Result: The Network dialog box reappears.

16 Continue with "To save the network settings" below.

To save the network settings

1 In the Network dialog box, click OK.

Result: You might be prompted with a warning indicating that at least one installed NIC contains an empty primary WINS address. Ignore this by clicking Yes. You are then asked if you want to restart your computer.

2 Click Yes to restart the CallPilot server.

Result: You might be informed that an SQLAnywhere service is running with connections, and asked if you want to end it.

3 Click Yes.

Result: You might also be asked if you want to save ACD proxy changes.

4 Click No.

Result: The CallPilot server restarts.

5 Continue with "To configure the Remote Access Service modem" on page 384.

To configure the Remote Access Service modem

1 In the Control Panel, double-click Modems.

Result: The General property page appears.



2 If a modem is listed and it matches the actual modem installed, then exit from the Modems control panel.

3 If a modem is listed and it does not match the actual modem installed, select it and click Remove.

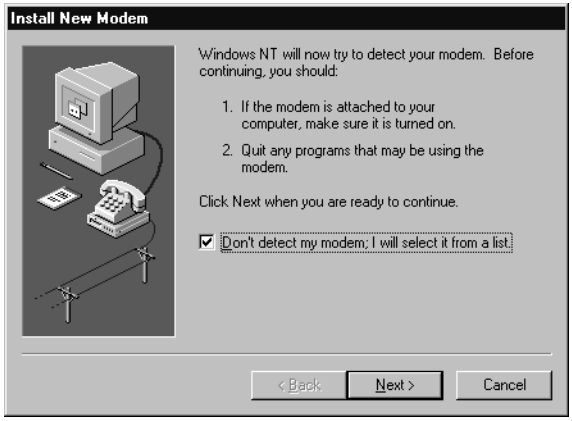
Result: You are prompted with a message similar to the following message:



4 Click Yes.

5 Click Add... to add the correct modem.

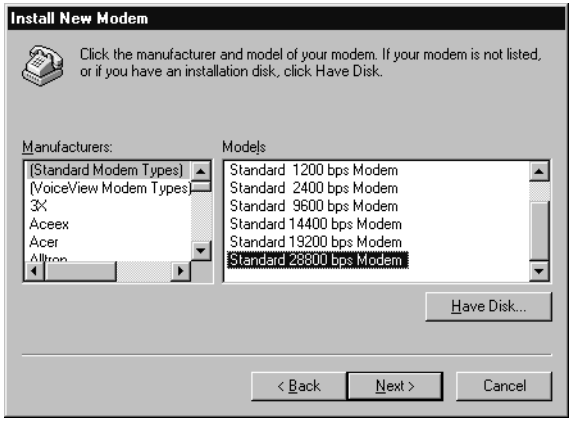
Result: The Install New Modem panel appears.



6 Check the Don’t detect my modem; I will select it from a list box.

7 Click Next.

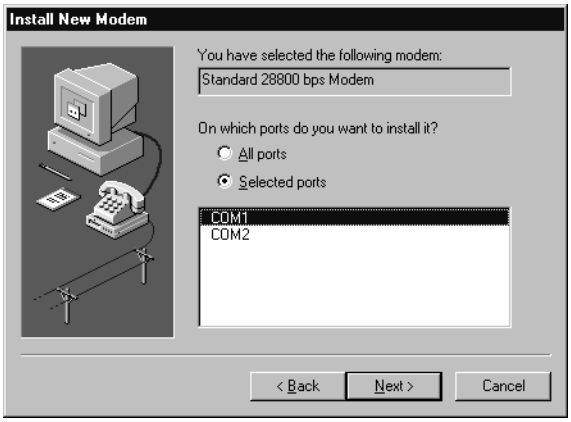
Result: The system prompts you to select your modem.



8 Select the type of modem installed on the server and click Next.

Note: If your modem is not listed, select the Standard 28000 bps Modem.

Result: The following dialog box appears.



9 Click COM1, and then click Next.

Result: The following dialog box appears.



10 Click Finish to complete installing the modem.

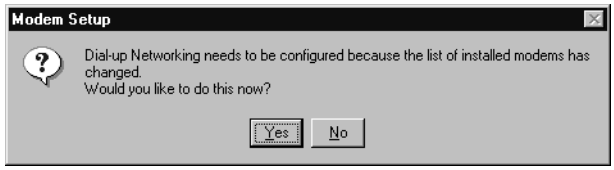
11 Continue with "To modify Dial-Up Networking" on page 387.

To modify Dial-Up Networking

This procedure is a continuation of "To configure the Remote Access Service modem" on page 384.

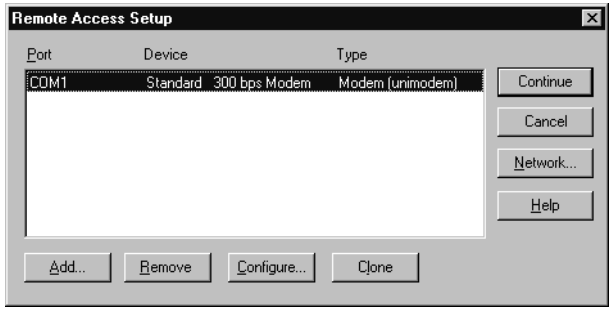
1 Close the Modem Control Panel.

Result: The system prompts you for changes to Dial-Up Networking because the modem has changed.



2 Click Yes to continue.

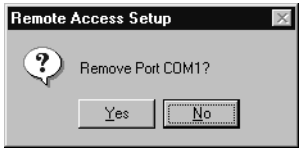
Result: The Remote Access Setup dialog box appears.



3 Select the old modem listed (usually on COM1).

4 Click Remove.

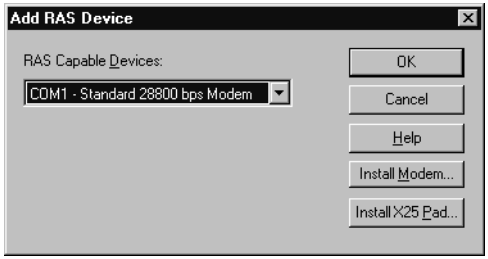
Result: The following window appears.



5 Click Yes to confirm that you want to remove the modem.

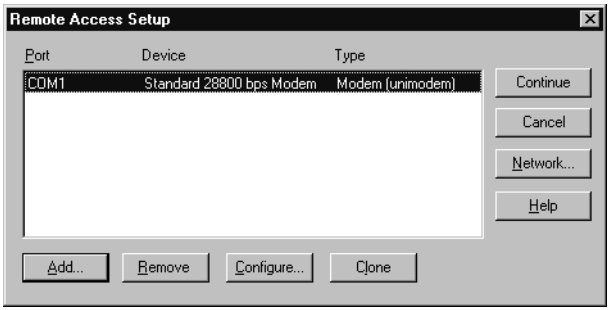
6 Click Add... .

Result: The Add RAS Device dialog box appears.



7 Select the installed modem from the drop-down list, and click OK.

Result: The Remote Access Setup dialog box appears.



8 Click Continue to save the changes.

Result: The system prompts you to restart the CallPilot server.



9 Click Yes to restart the CallPilot server.

What's next?

Continue with Chapter 10, "Preparing the server for remote access with pcANYWHERE32," on page 389.

Chapter 10

Preparing the server for remote access with pcANYWHERE32

In this chapter

Overview 390

Configuring pcANYWHERE32 391

Changing pcANYWHERE32 caller passwords 397

Overview

Introduction

With pcANYWHERE32, you can perform advanced administrative tasks on the server from a remote PC and control the server as though you were directly connected to the server.

One licensed copy of pcANYWHERE32 Version 8.0 is provided for the server on the CallPilot Server CD. pcANYWHERE32 is installed at the factory, but you must verify its configuration.

To install pcANYWHERE32 Version 8.0 on the administrative client PC, you must purchase a separate license for the administrative client PC. For instructions to install and configure pcANYWHERE32 on the administrative client PC, refer to the *Monitoring and Security for the Administrator* guide.

Configuring pcANYWHERE32

Introduction

This section describes how to configure pcANYWHERE32 to accept remote callers.

ATTENTION

pcANYWHERE32 might already be configured when you first receive your server. If so, then go through the procedures to ensure that the network icon and remote caller settings are correct. Then go to "Changing pcANYWHERE32 caller passwords" on page 397.

Windows NT NGenDist account (user ID) and the pcANYWHERE remote PC caller CallPilotDist account

To log on to the CallPilot server from a remote PC, the distributors use the Windows NT NGenDist account to log on to CallPilot, and then use the pcANYWHERE32 remote PC caller CallPilotDist account to access pcANYWHERE32 to control the server.

NortelSupport pcANYWHERE32 remote PC caller account

The NortelSupport pcANYWHERE32 remote PC caller account is created at the factory and is password-protected. It is created automatically during the CallPilot server software installation by the CallPilot setup program. Its purpose is to ensure a remote PC caller account is present for Nortel Networks product support if needed.

Password recommendations

Use the same password for the pcANYWHERE32 CallPilotDist caller account that you defined for the Windows NT NGenDist (Distributor) account. This simplifies the remote logon process.

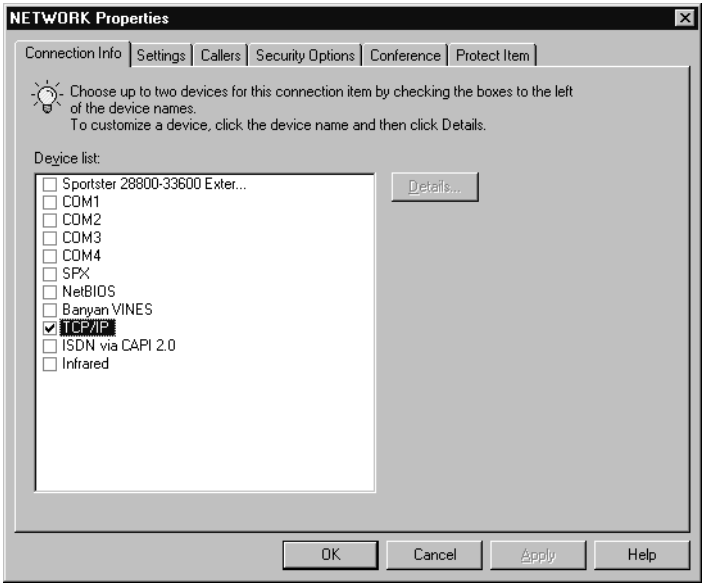
Maintaining remote access security

To maintain remote access security, change the password for the CallPilotDist caller account regularly. Continue to match the pcANYWHERE32 remote PC caller password for CallPilotDist to the Windows NT user account password for NGenDist.

To configure the network icon and remote PC caller accounts

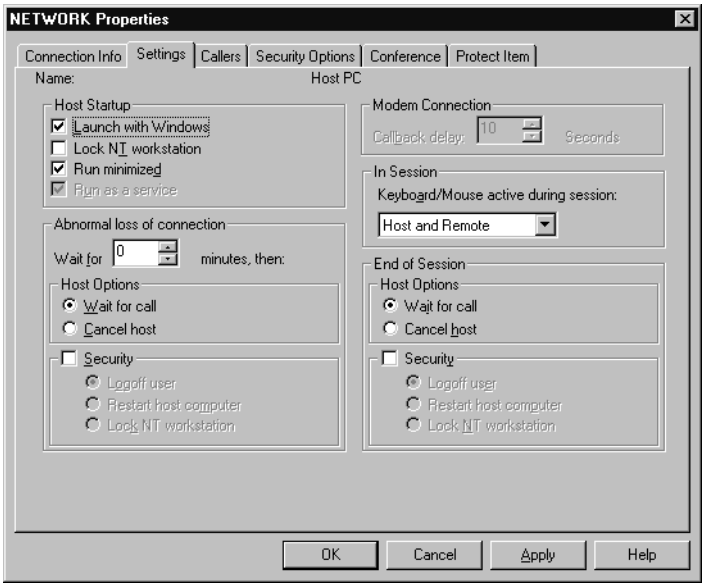
1. Click Start > Programs > pcANYWHERE32 > pcANYWHERE.
2. Select Be a Host.
3. Click on the Network icon to highlight it.
4. Right-click the Network icon and select Properties from the pop-up menu.

   Result: The NETWORK Properties sheet appears.
5. Select the Connection Info tab.
6. Ensure that only TCP/IP is checked, as in the following example:



7. Select the Settings tab.

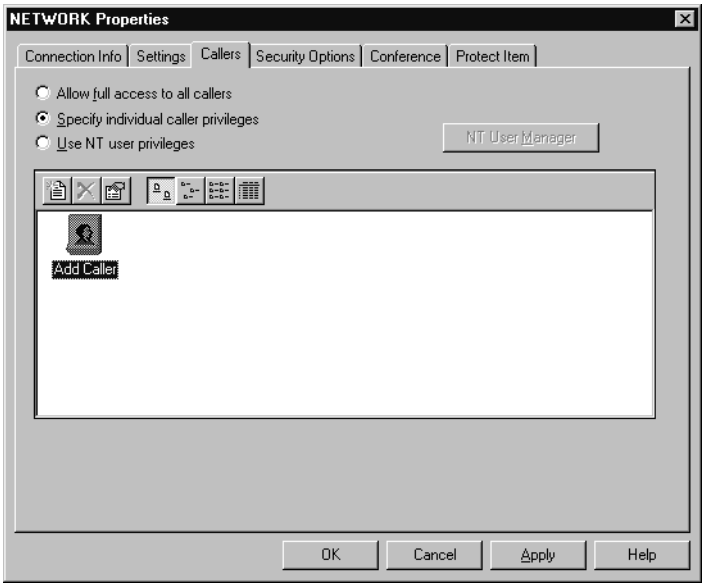
8 Ensure that settings are as shown in the following example:



9 Select the Callers tab.

Note: If the CallPilotDist caller icon has already been created, go to step 18.

10 Select Specify individual caller privileges, as in the following example:



11 Double-click Add Caller**.**

Result: The New Caller Wizard window appears.

12 Type CallPilotDist as the name for the caller, and click Next.

13 Type CallPilotDist for the login name.

14 In the Password field, type a new CallPilotDist password.

15 In the Confirm Password field, type the new CallPilotDist password again.

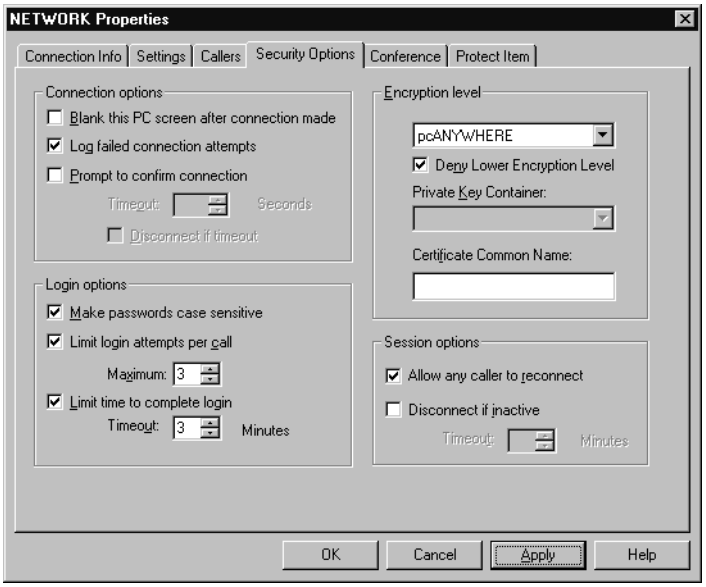
16 Click Next.

17 Click Finish.

Result: The Network Properties sheet appears.

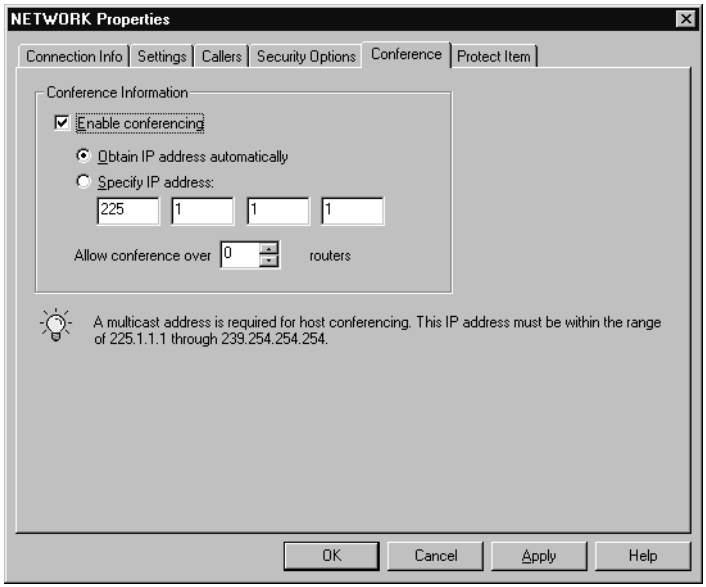
18 Select the Security Options tab.

19 Ensure that settings are as shown in the following example:



20 Select the Conference tab.

21 Ensure that Enable conferencing and Obtain IP address automatically are selected, as shown in the following example:



22 Select the Protect Item tab.

Note: If you want to assign a password to control who can modify the Network icon settings, then enter a password on this screen.

23 Click OK to apply all pcANYWHERE32 settings.

What's next?

If you did not have an opportunity to assign a password to CallPilotDist in the previous procedure, then go to "Changing pcANYWHERE32 caller passwords" on page 397.

If you have already assigned a password to the CallPilotDist caller account, then continue with Chapter 11, "Verifying that CallPilot can receive calls," on page 399.

Changing pcANYWHERE32 caller passwords

Introduction

To simplify the remote logon process, Nortel Networks recommends that you match the pcANYWHERE32 caller password for CallPilotDist to the Nortel Networks user account password for NGenDist. Therefore, Nortel Networks recommends that you change the pcANYWHERE32 caller CallPilotDist password and the Windows NT NGenDist account password at the same time.

To change passwords

1. Click Start > Programs > pcANYWHERE32 > pcANYWHERE.

   Result: pcANYWHERE32 starts.

2. Select Be a Host PC.
3. Click Network.

   Note: Do not double-click the icon or you begin a pcANYWHERE32 session.

4. From the File menu, select Properties.

   Result: The Network Properties sheet appears.

5. Select the Callers tab.
6. Click Specify individual caller privileges.
7. Right-click the CallPilotDist icon. Then select Properties.
8. Select the Settings tab.
9. In the Password field, type a new CallPilotDist password.
10. In the Confirm Password field, type the CallPilotDist password again.
11. Click Apply.
12. Click OK.
13. Click OK to return to the main pcANYWHERE32 window.
14. Exit pcANYWHERE32.

What's next?

Continue with Chapter 11, "Verifying that CallPilot can receive calls," on page 399.

Chapter 11

Verifying that CallPilot can receive calls

In this chapter

Checking that CallPilot is ready to accept calls (System Ready Indicator) 400

Testing the connection to the ELAN (Meridian 1 only) 405

Testing the connection to the CLAN 406

Verifying that CallPilot can receive calls 407

Checking that CallPilot is ready to accept calls (System Ready Indicator)

ATTENTION

CallPilot services requires approximately five to ten minutes after starting up the CallPilot server to become fully operational. CallPilot is not ready to accept calls until the CallPilot services are fully operational.

Introduction

CallPilot uses the following methods to indicate it is ready to accept calls:

- displays messages in dialog boxes after logon
- generates events
- displays status using the LED (applies only to IPE servers such as the 200i and 201i)

The system ready indicators described in this section appear when you restart the server, and also when CallPilot is running if a change in system readiness status occurs.

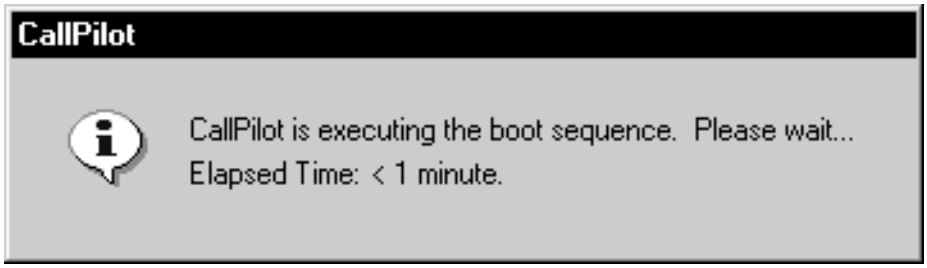
The system ready indicators appear only if the Configuration Wizard has been run on the server. The CallPilot server is not ready to accept calls if the Configuration Wizard has not been run.

To diagnose system ready indicator warnings or errors

If system ready indicator messages indicate an error, view the event log for more information. For detailed instructions on viewing events, refer to the *Monitoring and Security for the Administrator* guide. To further diagnose the problem, refer to Part 5 of this binder.

To check system readiness by observing the dialog box messages

After logon, the following dialog box appears if CallPilot services are not yet fully operational. It can take approximately one minute after logon for this dialog box to appear:



Note: This dialog box might not appear if enough time has passed between starting up the CallPilot server and logging on for CallPilot services to become fully operational. It takes approximately five to ten minutes after starting up the CallPilot server for CallPilot services to become fully operational.

If the CallPilot start sequence is passed successfully (CallPilot services are fully operational), the following dialog box appears:



Warning or Error dialog box messages

If there are errors, one of the following two dialog boxes appears (depending on the severity of the problem).

Warning message



Error message



Alternative methods for verifying that CallPilot is ready to accept calls

View event log entries on the Administrative PC or in the Windows NT Event Viewer on the server

The Pass, Warning, and Error system ready indicator messages appear as events in the Event Browser and Alarm Monitor (accessible from the Administrative PC), and in the Windows NT Event Viewer on the server.

The Event Browser and Alarm Monitor show only the latest 100 events by default (this default can be adjusted), so it is possible for the system ready indicator events to be removed from the Event Browser and Alarm Monitor windows.

For detailed instructions on viewing events, refer to the *Monitoring and Security for the Administrator* guide.

Observe the LED display on IPE CallPilot servers (for example the 200i or 201i server)

The LED display on the IPE CallPilot server faceplate displays the following messages.

Note: The DOWN, OK, MIN, MAJ, CRI, and "???" messages can appear regardless of whether the Configuration Wizard has been run. Some MIN, MAJ, and CRI events might appear because the server has not been configured, and might be resolved after running the Configuration Wizard. The BOOT, PASS, WARN, and FAIL messages are system ready indicator messages, and do not appear if the Configuration Wizard has not been run.

IPE CallPilot server LED display	Description
DOWN	The operating system is starting.
OK	The operating system start sequence has passed.
BOOT	CallPilot is starting and is not yet fully operational. Please wait.
PASS	CallPilot is fully operational and ready to accept calls.
WARN	CallPilot is ready to accept calls; however, some services failed the start sequence. Check the event log for further information.
FAIL	CallPilot failed the start sequence and cannot accept calls. Check the event log for further information.
MIN	A minor alarm has occurred. Check the event log for further information.

IPE CallPilot server LED display	Description
MAJ	A major alarm has occurred. Check the event log for further information.
CRI	A critical alarm has occurred. Check the event log for further information.
???	This indicates that an alarm of unknown severity occurred. This error should not occur on a properly installed system. The severity of this event is treated as higher-than-critical.

Testing the connection to the ELAN (Meridian 1 only)

Introduction

This procedure tests the network connection between the server and switch over the ELAN (for Meridian 1 switches only).

To test the connection to the ELAN

1 Click Start > Programs > Command Prompt.

Result: The Command Prompt window appears.

2 Type **ping** followed by the ELAN IP address for the switch, and then press Enter.

Note: Refer to the Configuration Wizard worksheets you completed in Part 1 of this Installation binder for the IP address. This is also the ELAN IP address specified for the switch in "Provisioning the ELAN" on page 95.

Example: ping 255.255.255.255

Result: The display should indicate a successful ping. If the ping is not successful, check the connection from the CallPilot server ELAN card to the switch.

3 If the CallPilot server is also connected to a CLAN, then continue with "Testing the connection to the CLAN" on page 406.

If the CallPilot server is not connected to a CLAN, then type **exit** and press Enter to close the Command Prompt window. Then continue with "Verifying that CallPilot can receive calls" on page 407.

Testing the connection to the CLAN

Introduction

This procedure tests the network connection between the server and the CLAN. This applies only if CallPilot has a CLAN card and is connected to a CLAN.

To test the connection to the CLAN

1. Click Start > Programs > Command Prompt.

   Result: The Command Prompt window appears.

2. Type **ping** followed by the CLAN IP address of another PC on the CLAN and press Enter.

   Example: ping 255.255.255.255

   Result: The display should indicate a successful ping.

3. Type **exit** and press Enter to close the Command Prompt window.

Verifying that CallPilot can receive calls

Introduction

The following procedure verifies that calls are sent from the switch to the server and that CallPilot's basic functionality is working.

To verify that CallPilot can receive calls

1. Ensure that CallPilot services are fully operational before you begin. See "Checking that CallPilot is ready to accept calls (System Ready Indicator)" on page 400.
2. Dial the main Voice Messaging DN that you defined in the server configuration wizard.
3. Listen for a response from CallPilot (for example, "Nortel CallPilot ..."), and then hang up. If you do not get a response, then do the following:
   - **a.** Check the cabling between the server and the switch.
   - **b.** Verify that the switch is processing calls to other extensions.
   - **c.** Refer to Part 5 of this binder for troubleshooting instructions.

What's next?

Continue with installing the CallPilot client software on the administrative PC (see Part 4 of this Installation binder).

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CallPilot

Installation and Configuration

Part 3: Switch Setup and CallPilot Server Configuration

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